

EXHIBIT 21

Expert Report of Robert H. Topel

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UNITED STATES DISTRICT COURT FOR THE DISTRICT OF NEVADA

CUNG LE, et al.,

Plaintiffs,

v.

ZUFFA, LLC d/b/a ULTIMATE
FIGHTING CHAMPIONSHIP and UFC,

Defendants.

Case No. 2:15-cv-01045-RFB-PAL

Expert Report of Professor Robert H. Topel

October 27, 2017

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I. INTRODUCTION

A. QUALIFICATIONS

1. I am Robert H. Topel, the Isidore Brown and Gladys J. Brown Distinguished Service Professor of Economics at The University of Chicago Booth School of Business.

2. I am an economist, and I specialize in (among other things) microeconomics, which is the study of markets, pricing, and firm and industry behavior. I received a B.A. in economics from the University of California, Santa Barbara in 1974, and a Ph.D. in economics from the University of California, Los Angeles in 1981. In addition to my position at the Booth School of Business at the University of Chicago, I have been a member of the faculties in the Department of Economics at the University of Chicago and the Department of Economics at the University of California, Los Angeles. At these institutions, I have taught courses on Markets and Prices, Economic Theory, Labor Markets, Empirical Methods in Economics, Compensation and Personnel Policies, Industrial Organization and Antitrust, Business Strategy, and Law and Economics. I am also the Director of the George J. Stigler Center for the Study of the Economy and the State and the Co-Director of the Energy Policy Institute at Chicago, both at The University of Chicago.

3. From 1993 to 2003, I served as the Editor of the *Journal of Political Economy*, and from 1991 to 1993 I was a member of the Editorial Board of the *American Economic Review*, two of the leading professional publications in economics and economic theory. I am also a past founding editor of the *Journal of Labor Economics* (1982 to 1992), and I currently am a member of the Editorial Advisory Board of the *International Journal of the Economics of Business* and the Advisory Board of the Economics Research Network. I am a Research Associate of the National Bureau of Economic Research, an elected member of the Council on Income and Wealth, an elected Founding Member of the National Academy of Social Insurance, and a Fellow of the Stanford University Center for the Study of Poverty and Inequality. In 2004, I was elected a Fellow of the Society of Labor Economists. In 2005, I received the Eugene Garfield Award for contributions to the economics of medical research, and, in 2007, I received the Kenneth Arrow Award from the International Health Economics Association.

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4. I have held various visiting and research positions with the Board of Governors of the Federal Reserve, the World Bank, the Economics Research Center of the National Opinion Research Center, the Brookings Panel on Economic Activity, the Rand Corporation, and the Center for the Study of the Economy and the State. I have published numerous articles in academic literature. My curriculum vitae appears in Appendix B.

5. I am also a Senior Consultant at Charles River Associates (“CRA”), an economics consulting firm specializing in the application of economic theory and statistics to legal and regulatory issues. I have consulted and served as an expert on liability, damages, and class certification issues in a number of antitrust matters. CRA is paid \$1,050 an hour for my time spent on this matter, and I receive compensation from CRA based on its billings in this case. My analysis is supported by colleagues at CRA.

6. I have been retained by counsel for Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC (collectively, “Zuffa”) to serve as an expert in economics in the above-captioned case. Specifically, I was asked by counsel for Zuffa to respond to the expert report filed by Dr. Hal J. Singer on behalf of Plaintiffs.¹ My work is ongoing, and I will supplement it if I become aware of new information that affects my conclusions. The materials that I relied on in forming my opinions are listed in Appendix C and are cited throughout my report. The complete details of the calculations that I describe in this report are contained in the computer programs that accompany the report. In conjunction with the databases listed in Appendix C, these computer programs can be used to replicate the calculations referenced in my report.

B. SUMMARY OF ALLEGATIONS AND DR. SINGER’S OPINIONS

7. Mixed martial arts (“MMA”) is a combat sport that combines techniques from several disciplines, including boxing, wrestling, karate, muay thai, Brazilian jiu jitsu, and judo. As I describe in detail in Section III, when Zuffa acquired UFC in 2001, MMA was a fringe sport. There were few standard rules, no weight classes, and state athletic commissions would not sanction MMA bouts. Immediately following the acquisition of UFC, Zuffa expended significant resources in legitimizing MMA. Zuffa was a prime mover in creating a unified set of rules for

¹ Expert Report of Hal J. Singer, Ph.D., *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D.Nev.) (August 31, 2017) [hereinafter SINGER REPORT].

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the sport and in convincing state athletic commissions to sanction MMA. Nevada was among the first states to do so in August 2001, four months after the UFC acquisition. Other states followed, and MMA has now been sanctioned by state athletic commissions in all 50 states. At the same time, Zuffa worked hard to promote its athletes and events with consumers and raise the profile of MMA.

8. These efforts by Zuffa, and Zuffa's skill in providing consumers with an attractive MMA product, grew the market for MMA, benefiting athletes, consumers, and competing promoters. Plaintiffs, a proposed class of MMA athletes,² and Dr. Singer ignore these benefits and focus on the results of Zuffa's efforts, which have made it the market leader among MMA promoters. Specifically, Plaintiffs allege that Zuffa's conduct was an attempt to acquire, maintain, and enhance market power in two related antitrust markets.³ The first is the market for professional MMA athletes, which Dr. Singer refers to as the Input Market; the second is the market for live professional MMA events, which Dr. Singer refers to as the Output Market.⁴

9. Dr. Singer identifies participants in the Input Market using three alternative definitions. The first is based on athletes who fought for one of nine MMA promoters tracked in the FightMetric database (the "Tracked" market).⁵ FightMetric is a service that collects information on MMA bouts, including bout-level information such as the number of strikes landed by an athlete, takedowns made by an athlete, and so on.⁶ The second definition adopted by Dr. Singer expands the Tracked market to include any MMA athletes ranked in the FightMatrix database if that athlete fought for a promoter that has ever held an event in North America.⁷ FightMatrix (not to be confused with FightMetric) is an online database that provides current and historical

² Consolidated Amended Antitrust Class Action Complaint, *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D.Nev.) [hereinafter COMPLAINT], at § V.

³ COMPLAINT at ¶ 4.

⁴ COMPLAINT at ¶ 4; SINGER REPORT at ¶ 2.

⁵ SINGER REPORT at ¶¶ 108-109.

⁶ Declaration of Rami Genauer (October 26, 2017) [hereinafter GENAUER DECL.].

⁷ SINGER REPORT at ¶ 110.

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ranking of MMA athletes by division.⁸ In addition, Dr. Singer includes in this second market any MMA athlete who fought for the MMA promoter, ONE Championship; he refers to this as the “Ranked” market.⁹ Dr. Singer’s third Input Market definition is substantially narrower: starting from his Ranked market, he includes only those MMA athletes who are ranked in the top 15 of their respective division in FightMatrix (the “Headliner” market).¹⁰

10. Starting from these three Input Market definitions, Dr. Singer then defines the Output Markets to include live MMA events in which the participating athletes are in the Input Markets.¹¹

11. As described by Dr. Singer, Zuffa’s anticompetitive scheme foreclosed rivals and impaired the ability of competitors to compete with Zuffa.¹² The key components of this alleged scheme included: Zuffa acquiring other MMA promoters;¹³ Zuffa entering into exclusionary contracts with athletes, which Dr. Singer argues were effectively perpetual and foreclosed rivals of the key inputs (the athletes themselves) needed to be a successful MMA promoter;¹⁴ and Zuffa impairing rivals in other ways, including, among other things, counter-programming against MMA events promoted by competitors, preventing athletes from using clips of their UFC bouts, and denying competitors access to sponsors and venues.¹⁵ Taken together, Dr. Singer refers to these actions as the “Challenged Conduct.”¹⁶

12. As indirect evidence of its market power in the Input Market (*i.e.*, monopsony power), Dr. Singer argues that Zuffa has a high share of the Input Market measured using either his

⁸ FightMatrix, “FAQ,” available at <http://www.fightmatrix.com/faq/>.

⁹ SINGER REPORT at ¶ 110.

¹⁰ SINGER REPORT at ¶ 112.

¹¹ SINGER REPORT at ¶ 115.

¹² SINGER REPORT at ¶ 2.

¹³ SINGER REPORT at § II.A.1.

¹⁴ SINGER REPORT at §§ II.B.1, II.B.2, II.C.

¹⁵ SINGER REPORT at §§ II.A.2, II.B.3.

¹⁶ SINGER REPORT at ¶ 2.

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Tracked, Ranked, or Headliner definitions.¹⁷ In calculating shares within these proposed Input Markets, Dr. Singer argues that it is appropriate to weight athletes by either the revenue associated with each athlete's promoter, or by the inverse of the athlete's ranking.¹⁸ In so doing, Dr. Singer argues that he has accounted for the fact that not all MMA athletes are substitutable in promoting events, and that athletes signed by Zuffa are of higher quality than those who fight for other promoters.¹⁹

13. Similarly, Dr. Singer argues that there is indirect evidence of Zuffa's market power in the Output Market (*i.e.*, monopoly power), because Zuffa accounts for a high share of revenue earned by MMA promoters,²⁰ there are barriers to entry in MMA promotion,²¹ and Zuffa is widely recognized by industry participants as the dominant promoter of live professional MMA events.²²

14. As direct evidence of Zuffa's market power, Dr. Singer claims to find that Zuffa has suppressed its athletes' compensation, Zuffa has pricing power over MMA events, Zuffa has restricted demand for MMA athletes' services, Zuffa has restricted the output of MMA events, and Zuffa has excluded and impaired competitors.²³ In assessing direct evidence of Zuffa's alleged market power in the Input Market (*i.e.*, whether Zuffa suppressed MMA athletes' compensation below competitive levels), Dr. Singer argues that economic models of the labor market predict what a worker would be paid as a fraction of a firm's revenue.²⁴ Thus he claims that evidence of Zuffa exercise of monopsony power will be reflected in a reduction in an MMA

¹⁷ SINGER REPORT at ¶¶ 128-29 and Figure 1.

¹⁸ SINGER REPORT at ¶ 128.

¹⁹ SINGER REPORT at ¶ 128

²⁰ SINGER REPORT at § III.A.5.

²¹ SINGER REPORT at §§ III.A.6 and III.A.7.

²² SINGER REPORT at § III.A.8.

²³ SINGER REPORT at §§ III.B.1-III.B.5.

²⁴ SINGER REPORT at n. 454.

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athlete's pay as a fraction of event revenue. He does not, however, investigate whether the pay received by Zuffa athletes increased or decreased during the class period.

15. The primary support for Dr. Singer's opinion that Zuffa's conduct suppressed compensation to its athletes is an econometric model of the relationship between the share of event revenue that MMA promoters pay to athletes and a measure of the fraction of the Input Market that Zuffa has "foreclosed" from rivals.²⁵ Specifically, Dr. Singer measures Zuffa's "foreclosure share" as the share of MMA athletes in each of his Input Markets who are under contract with Zuffa, where, according to his calculations, the contract is at least 30 months in length and the contract contains a champions clause (which allows Zuffa the limited opportunity to retain its current weight-class champions for one-time, one-year extension).²⁶ Using this model, he finds a negative relationship between athletes' compensation (expressed as a fraction of event revenue) and Zuffa's foreclosure share.²⁷ Dr. Singer argues that the model demonstrates that Zuffa has paid its athletes less than it would have if it had signed fewer athletes to restrictive contracts,²⁸ and that this effect is common across almost all members of the putative class.²⁹

16. Dr. Singer also uses his econometric model to calculate damages. He first predicts what Zuffa's average compensation to its athletes would have been (expressed as a percentage of event revenue) if Zuffa's foreclosure share declined to 30 percent.³⁰ He then applies this but-for compensation ratio to an estimate of Zuffa's total event revenue over the proposed class period, and subtracts the amount that Zuffa actually paid its athletes over this period.³¹ He does this

²⁵ SINGER REPORT at § III.D.1.

²⁶ SINGER REPORT at ¶¶ 171-172, 182.

²⁷ SINGER REPORT at Table 6.

²⁸ SINGER REPORT at ¶¶ 186-187.

²⁹ SINGER REPORT at § IV.C.

³⁰ SINGER REPORT at §§ VI.B – VI.C. As I described previously, Zuffa's foreclosure share is the fraction of MMA athletes in the Input Market that are signed to contracts with a duration of at least 30 months and which contain a champion's clause. (See *supra* n. 26.) In reducing Zuffa's MMA share, he does not specify whether he believes that Zuffa would have fewer athletes under contract but continue to use the same allegedly exclusionary contracts, whether he believes that Zuffa would have the same number of athletes under contract but change the contract terms, or whether some combination of these two changes would occur.

³¹ SINGER REPORT at Tables 10-11.

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calculation using two different econometric models that differ in how they define the benchmark against which Zuffa is compared.³² In the first, Dr. Singer excludes athlete compensation data from Strikeforce (prior to its acquisition by Zuffa) in estimating his model, which results in damages of \$894.3 million.³³ In the second, Dr. Singer includes these pre-acquisition Strikeforce compensation data, which increases damages to \$1,597.6 million.³⁴

17. In addition to measuring damages using his econometric model, Dr. Singer measures damages by comparing the fraction of revenue paid by Zuffa to its athletes with the fraction of revenue paid by two competing MMA promoters, Strikeforce and Bellator, to their respective athletes.³⁵ According to Dr. Singer's calculations, Zuffa paid athletes 19.5 percent of its revenue, Bellator paid athletes 44.7 percent of its revenue, and Strikeforce paid athletes 63.0 percent of its revenue.³⁶ Assuming that Zuffa would have, but-for the Challenged Conduct, paid the same percentage of revenue to its athletes as did Strikeforce and Bellator, Dr. Singer calculates damages of between \$811.2 million and \$1,399.6 million.

18. As I noted above, the Challenged Conduct as described by Dr. Singer is comprised of several allegations: the acquisition of rival MMA promoters by Zuffa, Zuffa's use of exclusionary contracts with its athletes (*e.g.*, contracts that contained a champion's clause, that could be extended because of injury or an athlete's unwillingness to fight, that contained a retirement clause, or that contained a right-to-match clause), Zuffa broadcasting events at the same times as its rivals (*i.e.*, counter-programming), Zuffa denying rivals access to venues and sponsors, and so on.³⁷ In his damage estimates, however, Dr. Singer makes no attempt to identify the *separate* contributions of these allegations to his estimates of impact or damages. Indeed, Dr. Singer's foreclosure regressions at best measure the effect of only two features of Zuffa's

³² SINGER REPORT at ¶¶ 249 and 251.

³³ SINGER REPORT at Table 10.

³⁴ SINGER REPORT at Table 11.

³⁵ SINGER REPORT at § VI.A.

³⁶ SINGER REPORT at ¶ 247.

³⁷ See *supra* ¶ 11.

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contracts: the use of contracts that are at least 30 months in length, and the use of contracts that contain a champion's clause.

19. Lastly, Dr. Singer preemptively dismisses Zuffa's procompetitive justifications for the Challenged Conduct.³⁸ Broadly, he argues that the use of similar contract terms by promoters that do not possess substantive monopsony power, and by Zuffa before it allegedly acquired monopsony power, is not a valid defense of the challenged contractual provisions.³⁹ According to Dr. Singer, a more fragmented market structure, in which different firms cross-promoted MMA events, would be more efficient than the current market structure in which Zuffa is the market leader.⁴⁰ (Presumably, that but-for market structure would allow Zuffa's competitors to retain the challenged contractual provisions that Dr. Singer argues are anticompetitive when adopted by Zuffa.)

C. SUMMARY OF OPINIONS

20. Based on the analyses described in the body of my report, I have reached the following main opinions:

21. **Opinion 1:** Zuffa's success results from its strategy of market leadership. Zuffa has expanded the market for MMA by evangelizing it acceptance, aggressive competition on the merits, and promotional investments in both fighters and events. Zuffa is a prime example of the kind of superior skill, foresight, and industry that is the hallmark of vigorous competition, which has benefitted consumers, MMA athletes, and other MMA promoters.

22. **Opinion 2:** Plaintiffs' main allegation is that Zuffa has exercised monopsony power in a putative market for MMA fighters, reducing fighters' compensation. Yet Plaintiffs' economic expert, Dr. Singer, provides no analysis of how much fighters are actually paid and no evidence that their compensation has been reduced by any of Zuffa's conduct. Contrary to Plaintiffs' claims, the compensation of Zuffa's athletes has steadily and materially increased, both before and during the Class Period. Zuffa pays its athletes significantly more than competing MMA

³⁸ SINGER REPORT at § VII.

³⁹ SINGER REPORT at § VII.A.

⁴⁰ SINGER REPORT at § VII.D.

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promoters, and athletes that have moved to Zuffa as a result of challenged acquisitions experienced significant pay increases.

23. **Opinion 3:** On the output side, Zuffa's market-expanding strategy and investments have also benefitted consumers and other MMA promoters. Zuffa has increased the number and variety of MMA events available to consumers, and viewership—the correct measure of market expansion and consumption—has sharply risen during the class period. Zuffa was the leader in laying the regulatory groundwork for acceptance of MMA as something other than a fringe sport, which created the platform on which Zuffa and rival MMA promoters compete.

24. **Opinion 4:** Barriers to entry for MMA promoters are low. Competing promoters have ready access to inputs and facilities needed to stage MMA events, including access to MMA athletes, venues, broadcasters, and sponsors. Zuffa's efforts have helped rivals overcome the most significant barrier to entry for MMA promoters through its work to get MMA regulated and sanctioned by state athletic commissions—MMA is now sanctioned in all 50 states. Low entry barriers are demonstrated by the rapid expansion of competitors including Bellator, Professional Fighters League, ONE Championship, and Absolute Championship Berkut. In addition to competing against Zuffa in the Output Market, these promoters also compete with Zuffa to sign MMA athletes.

25. **Opinion 5:** Zuffa's challenged contractual provisions are procompetitive. This conclusion is demonstrated by the fact that promoters without substantive market power use them. Specifically, my analysis shows that other MMA promoters use contractual provisions that are very similar to those used by Zuffa, and that Zuffa used such provisions in its early years, when it could not have exercised substantial market power. I also provide the procompetitive rationales for these provisions, based on well-established economic principles. The contract provisions are efficient and procompetitive responses to contracting externalities and transactions costs that would otherwise hinder promoters' investments in the quality and marketability of MMA fighters and events. These provisions have been instrumental in developing MMA as a successful sports market. Dr. Singer fails to consider these procompetitive benefits.

26. **Opinion 6:** Dr. Singer adopts an economically incorrect metric to support his opinion that Zuffa's conduct increased its monopsony power, allowing it to reduce MMA athletes'

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compensation. Standard and widely-accepted economic models of competitive labor markets explain the determination of workers' wages, measured in dollars per worker. Dr. Singer ignores these models. Instead, he asserts without foundation that an MMA athlete's compensation should be measured as a share of event revenues rather than as dollars paid. This metric is economically incorrect: there is no economic basis for Dr. Singer's assumption that a decline in the share of total event revenue paid to an MMA athlete is evidence of anticompetitive harm. In fact, procompetitive, market-expanding conduct by Zuffa would cause this share to decline in the absence of any harm to an MMA athlete, even if actual compensation of these athletes rose—which in fact it did.

27. **Opinion 7:** Dr. Singer's regression evidence of anticompetitive impact and harm is misleading, fatally flawed, and unreliable. He claims to show that greater foreclosure of the market for MMA fighters by Zuffa has reduced the compensation of Class Members, yet his measures of both "foreclosure" and compensation are economically and econometrically incorrect. They will mechanically generate "evidence" of anticompetitive impact, even if such impact is impossible and even if compensation of MMA fighters is increasing. Dr. Singer measures "foreclosure" by the share of MMA fighters with particular contractual provisions who are under contract with Zuffa. In addition to other flaws discussed in detail below, this share will increase simply because Zuffa has competed aggressively on the merits, expanding relative to rival promoters and becoming the market leader. Dr. Singer's measure of labor market outcomes is not the compensation paid to its fighters, but instead the compensation of a fighter divided by Zuffa's revenue from the event in which the fighter performed. This measure will decline as Zuffa events become more popular, because event revenues increase—even if the pay of Zuffa fighters is rising. Together these errors imply a mechanical negative relationship between Dr. Singer's measures of "foreclosure" and "compensation": as Zuffa competed on the merits and became more successful at promoting MMA fighters and events, its share of MMA fighters under contract rose while compensation *as a share of event revenue declined*. This mechanical relationship says nothing about anticompetitive impact or harm.

28. **Opinion 8:** The economically correct measure of compensation is compensation—measured in dollars per athlete. Accepting *arguendo* the other flawed aspects of Dr. Singer's regression model, including his flawed measures of "foreclosure," I re-estimated his model using

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the compensation of Zuffa athletes as the outcome of interest rather than compensation divided by event revenue. With this single correction, Dr. Singer's claimed finding of a negative relationship between "foreclosure" and "compensation" vanishes. His model provides no evidence that "foreclosure" reduced the compensation of Zuffa athletes. Beyond this critical error, I document other econometric errors in Dr. Singer's model. When these errors are corrected Dr. Singer's model shows no relationship between his flawed measures of "foreclosure" and "compensation." In my opinion, proper regressions and economic analysis show that it is not true that all or virtually class members were injured. In my opinion, class members did not suffer injury or damages.

29. **Opinion 9:** Zuffa's acquisitions of other MMA promoters did not allow Zuffa to acquire or exercise monopoly or monopsony power. Plaintiffs allege that the acquisition of competing MMA promoters was a contributor to Zuffa's monopoly and monopsony power. As an initial matter, this claim fails because barriers to entry for MMA promoters are low, so there is no basis on which to conclude that a temporary reduction in competitors in the marketplace due to an acquisition would have long-term effects on competition. The MMA promoters acquired by Zuffa were also small: Adopting Dr. Singer's metrics for measuring Zuffa's foreclosure share, none of these acquisitions had a substantial impact on Zuffa's share.

30. **Opinion 10:** Dr. Singer has failed to specify or analyze a meaningful "but-for" market structure. For the purpose of assessing whether the Challenged Conduct is anticompetitive, the appropriate "but-for" world is the market as it would be without that Conduct. Dr. Singer fails to provide any analysis of what contractual forms and restrictions would be allowed and used in the but-for world instead of the ones that Plaintiffs challenge. For example, he arbitrarily assumes that existing provisions granting exclusivity for at least 30 months are exclusionary, without specifying what shorter duration would be competitively acceptable. Neither does he explain how Zuffa would compete against rival promoters that would be allowed to use contract provisions that are prohibited for Zuffa. He also fails to distinguish between the effects of competitive and anticompetitive conduct: he simply asserts a vaguely defined but-for world would have more competition, rather than projecting how removing the Challenged Conduct would change the market. Last, in his claims of anticompetitive harm Dr. Singer only considers the impact of the contractual provisions in Zuffa's contracts that, he claims, extend the period of

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exclusivity when an athlete is under contract to Zuffa. He makes no attempt to establish that there was anticompetitive harm from other elements of the Challenged Conduct or to estimate damages attributed to those elements, including horizontal acquisitions, counter programming, the champion's clause, the retirement clause and other tolling provisions, restrictions on the use of clips and sponsors with other promoters, and exclusivity provisions with venues and sponsors.

31. **Opinion 11:** Dr. Singer's delineations of the Input Market are flawed. His "Tracked" measure of the Input Market is neither comprehensive nor consistent, excluding many other MMA promoters and their fighters. His "Headliner" measure of the Input Market conflates athletes' ability with promoter acumen and undermines Plaintiffs' claims of commonality across the proposed class. These problems are compounded by Dr. Singer's use of weights in calculating Zuffa's share of putative Input Markets. Under his methodology, a promoter that invests more in marketing or is better at marketing than other promoters will have a higher return, as measured by event revenue. These differences in investments are reflected in higher event revenues than for other promoters—even with the same athletes. Dr. Singer falsely attributes these differences to "foreclosure."

32. **Opinion 12:** Direct evidence demonstrates that Zuffa did not suppress athlete compensation, raise prices, or restrict output. Zuffa pays its athletes more than its competitors, has increased compensation to its athletes over the last decade, and has increased the compensation of athletes it signed from acquired promoters. Dr. Singer ignores these facts, and focuses instead on Zuffa's sponsorship programs. While he argues that Zuffa's sponsorship programs provide evidence of Zuffa's unilateral ability to reduce compensation, his claims are not supported by the evidence. Dr. Singer also cites a one-time increase in Zuffa's live pay-per-view ("PPV") nominal prices, from \$45 to \$50, as direct evidence of Zuffa's market power in the Output Market. But the rate of increase in nominal PPV prices was lower than the rate of increase in nominal prices for other services (*e.g.*, cable and television services), and Dr. Singer does not consider whether this small nominal price increase was related to competitively benign factors, such as an increased in consumer demand for MMA events or an increase in the cost of promoting those events. Consistent with the absence of any evidence that Zuffa increased its prices, there is no evidence that the total supply of MMA events decreased. Overall attendance at MMA events immediately before and during the Class Period were broadly consistent, while

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television viewership of MMA events increased from 27 million viewers in 2009 to 60 million viewers in 2016.

33. **Opinion 13:** There is no common compensation structure for all Zuffa athletes. Rather, the evidence shows that a variety of factors affected an athlete's pay, including the athlete's record, notoriety, experience, and representation. In addition, when Dr. Singer's common-factor regression is limited to the Class Period, there is no evidence that one MMA athlete's compensation is correlated with the compensation of other athletes.

34. **Opinion 14:** Dr. Singer's damage calculations are misleading and unreliable, based as they are on his incorrect methods of estimating antitrust impact, discussed above in Opinions 7 and 8. Although he presents several variations with different inputs and results, the core methodology is the same: estimate an increased *share* of event revenue that would be paid to a Zuffa athlete if the "foreclosure" percentage is set at some lower level. Because these calculations are based on Dr. Singer's flawed and misleading regression model, which purports to find harm when there is none, they are equally flawed and misleading. Even ignoring those criticisms, his calculations are based on an arbitrary assumption about the "foreclosure share" that would prevail in some alternate world, rather than a proper comparison between the current marketplace and how the marketplace would change absent the Challenged Conduct. Further, Dr. Singer does not and cannot directly measure damages for all members of the proposed class, but instead relies on average correlations between athletes' compensation (as a percentage of event revenue) and his foreclosure share.

35. **Opinion 15:** Dr. Singer's other claims regarding the competitive effects of Zuffa's conduct are unsupported by the evidence. Letters of Agreement ("LOA"), which Dr. Singer argues may be used to avoid publicly reporting athletes' compensation are used at the request of athletes, not as a basis to hide compensation. Dr. Singer provides no explanation for how LOAs could exclude competitors. Counter-programming by Zuffa or its rivals is procompetitive and increases consumer choice. Zuffa did not use litigation as a tool to stifle competition, nor did non-compete agreements between Zuffa and other MMA promoters meaningful affect Zuffa's competition in the marketplace.

36. I discuss each of these opinions in more detail in the remainder of my report.

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II. REQUIREMENTS FOR SHOWING THAT CONDUCT IS ANTICOMPETITIVE

37. Dr. Singer concludes in his report that the Challenged Conduct was anticompetitive because Zuffa enjoyed “substantial market power,” and exercised that power through the Challenged Conduct to “substantially foreclose and harm competition.”⁴¹ Since the claim that the Challenged Conduct is anticompetitive is fundamental to Dr. Singer’s conclusions, it is crucial to understand how economists determine what does and does not constitute anticompetitive conduct. This section describes my understanding of that determination, and identifies how the analyses I conduct in the remainder of the report lead to my conclusion that the Challenged Conduct was not anticompetitive.

38. As a starting point, possessing monopoly or monopsony power in and of itself is not anticompetitive. Rather, antitrust economics distinguishes between benign monopoly power that is obtained through a superior product, business acumen, or historic accident and monopoly power that is obtained or maintained through anticompetitive conduct. In particular, economic principles promote vigorous competition on the merits, but do not imply that firms that have developed market power through legitimate means should be constrained.

39. In Section III of my report, I briefly describe Zuffa’s innovative and procompetitive business strategy that led to its rapid growth and success. It is fair to say that Zuffa’s strategy was the driving force behind the development and widespread acceptance of MMA as a professional sport, which benefited consumers, MMA athletes, and other MMA promoters. Section IV shows that Zuffa’s innovations and success have fostered a highly competitive marketplace, with numerous competitors striving to build on, and if possible, supplant, Zuffa’s success.

40. In determining whether conduct has led to or maintained monopoly power, antitrust economists look to whether the conduct has harmed competition by enabling the alleged monopolist to exclude competition or control prices. As noted previously, even if it is shown that a firm exercises substantive market power within a defined market, when evaluating evidence on pricing and exclusion it is necessary to distinguish between outcomes that are the result of a

⁴¹ SINGER REPORT at ¶¶ 5, 6, 39.

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legitimate exercise of market power resulting from a superior product or business acumen versus outcomes that result from anticompetitive conduct. Plaintiffs allege that a list of Zuffa's contract provisions with its athletes and other acts—as shorthand, the Challenged Conduct—are anticompetitive. For the purpose of assessing whether the Challenged Conduct is anticompetitive and whether that conduct harmed Plaintiffs, the appropriate “but-for” world is the market as it would be without the Challenged Conduct. As discussed in Sections X through XII of my report, Dr. Singer has failed to perform the proper but-for analysis. In particular, he fails to provide any analysis of what contractual forms and restrictions would be allowed and used in the but-for world. For example, he arbitrarily assumes that existing provisions granting exclusivity for at least 30 months are exclusionary, without specifying what shorter duration would be competitively acceptable. Neither does he explain how Zuffa would compete against rival promoters that would be allowed to use contract provisions that are prohibited for Zuffa.

41. Turning to the first hallmark of market power, excluding competition, both legitimate competition on the merits and anticompetitive conduct can lead to a reduction in the number of competitors or a reduction in the shares of competitors. But a reduction in the number of competitors or the shares of those competitors that result from competition on the merits is a procompetitive story, and Dr. Singer agrees that Zuffa's conduct should be “considered in light of any procompetitive effects.”⁴²

42. In the subsequent discussion in his report, Dr. Singer reviews and dismisses procompetitive rationales for Zuffa's contracting practices.⁴³ However, he fails to consider the most direct evidence about whether these practices are procompetitive: whether promoters that do not have substantial market power use them.⁴⁴ In Section V of my report, I show that other MMA promoters use contractual provisions in Promotional and Ancillary Rights (“PAR”) agreements that are very similar to those used by Zuffa. Zuffa also has used similar provisions for a long time, dating to periods when it could not have exercised substantial market power. My

⁴² SINGER REPORT at ¶179, citing *ZF Meritor, LLC v. Eaton Corp.*, 696 F.3d 254, 271 (3d Cir. 2012).

⁴³ SINGER REPORT at § VIII.

⁴⁴ Dr. Singer testified that he did not examine the contractual terms used by other MMA promoters. (Deposition of Hal J. Singer, PhD. (September 27, 2017) [hereinafter SINGER TR.] at 171-72, 202.)

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analysis goes beyond merely demonstrating that MMA promoters without market power use these contract provisions, however. I also provide the procompetitive rationales for these provisions, based on well-established economic principles. Specifically, I explain why these contract provisions are an efficient and procompetitive response to the inefficiencies and contracting externalities created by transaction costs and free riding, and why these provisions have been instrumental in developing MMA as a successful sports market.

43. A related issue is whether the Challenged Conduct increased entry barriers. That is, did the Challenged Conduct prevent others from competing effectively in the marketplace? Once again, it is critical to distinguish between Zuffa's competitive advantages that result from legitimate competitive behavior—behavior that may make it more difficult for others to succeed—and barriers that stem from anticompetitive conduct. The plain reading of the facts as put forth by Dr. Singer indicates that entry barriers are low, with hundreds of MMA promoters having entered the market. As one document quoted by Dr. Singer states, “UFC holds the dominant market position within the sport and continues to do so even as a highly fragmented group of competitors have entered the market in an attempt to emulate UFC's success.”⁴⁵ Nevertheless, I show in Section IV.A that barriers to entry are low and that the horizontal acquisitions alleged by Plaintiffs to be part of the Challenged Conduct did not increase entry barriers or lead to a substantive increase in Zuffa's market power. In addition, the evidence is that acquisition by Zuffa raised, not lowered, athletes' compensation, which is completely inconsistent with Plaintiffs' claims. (See Section IX.C.)

44. The second hallmark of market power is the ability to control prices, in this case the compensation that Zuffa and other promoters pay to MMA athletes. The primary allegation discussed by Dr. Singer is that Zuffa's conduct increased its monopsony power, allowing it to reduce MMA athletes' compensation. Once again, the plain reading of the facts as put forth by Dr. Singer belies this allegation. Dr. Singer quotes one document that says, “UFC... has the revenue model providing ability to pay fighters the most in the market, by far.”⁴⁶ It is noteworthy

⁴⁵ SINGER REPORT at ¶ 138, citing ZUF-00162329-82. See also SINGER REPORT at ¶¶ 104, 111, 114.

⁴⁶ SINGER REPORT at ¶ 159, citing WME-ZUFFA-00013978-79.

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that Dr. Singer considers other MMA promoters Strikeforce and Bellator to be a proxy for competitive compensation.⁴⁷ Yet he conspicuously fails to compare Zuffa's actual compensation of athletes to the amounts paid by these promoters.⁴⁸ The unrefuted evidence in Dr. Singer's own report is that Zuffa pays its athletes substantially more than these competitive benchmark promoters. Moreover, when Strikeforce was acquired by Zuffa in late 2010, the compensation of former Strikeforce athletes sharply increased after their contracts were acquired by Zuffa. This is exactly the opposite of what Plaintiffs' theory would predict. The fact that Zuffa pays more than Dr. Singer's competitive benchmark indicates that the Challenged Conduct has not reduced the compensation of Class Members—in fact Zuffa has increased that compensation.

45. Dr. Singer attempts to salvage Plaintiffs' claim of reduced MMA athlete compensation caused by the acquisition of monopsony power by measuring an athlete's compensation as a share of event revenues, rather than simply dollars paid. This metric is economically incorrect. It is also inconsistent with all applications of antitrust harm of which I am aware. I show in Section VI that Dr. Singer's measurement of a monopsony effect fails on theoretical grounds: revenue share is the wrong measure of anticompetitive impact, which means that Dr. Singer's test for anticompetitive impact and his estimates of "harm" are meaningless. Specifically, there is no theoretical basis for Dr. Singer's presumption that a decline in the share of total event revenue paid to an MMA athlete is evidence of anticompetitive harm. In fact, procompetitive, market-expanding conduct by Zuffa would cause this share to decline in the absence of any harm to MMA athlete, even if actual compensation of these athletes rose.

46. As an empirical matter, I show in Section VII that Zuffa's athletes' compensation does not decrease with Dr. Singer's flawed measure of alleged "foreclosure," and that compensation of Zuffa athletes has increased as its alleged ability to "foreclose" has risen. Furthermore, even accepting Dr. Singer's method for measuring the effect of foreclosure, when properly conducted his own analysis does not show a relationship between alleged foreclosure and athletes' compensation.

⁴⁷ SINGER REPORT at ¶ 190.

⁴⁸ SINGER TR. at 294-96.

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47. I also review Dr. Singer’s discussion of alleged monopoly price increases for MMA events, and show that he does not demonstrate a connection between the purported price increases and either market power or the Challenged Conduct. In fact, the only prices in the Output Market discussed by Dr. Singer—the prices of Zuffa pay-per-view (“PPV”) events—have not increased in real (*i.e.*, adjusted for inflation) terms.

48. To summarize: A finding of anticompetitive conduct requires showing that the alleged monopolist or monopsonist employed specific practices to enhance or preserve its market power, and that those practices harmed competition. My analyses show instead that the Challenged Conduct did not harm competition, nor did it cause members of the Class to suffer economic harm. Indeed, the evidence is that Class Members have benefitted from Zuffa’s success, and the Challenged Conduct is central to that success.

III. THE UFC SUCCEEDED BY PROCOMPETITIVE MEANS

A. THE UFC BUILT AND GREW THE BUSINESS OF MMA, INCREASING CONSUMER CHOICE, AND CREATING A PRODUCT CONSUMERS VALUE

49. UFC is a prime example of the kind of “superior skill, foresight, and industry” that is the hallmark of vigorous competition. When Zuffa acquired UFC in 2001, MMA was a fringe sport.⁴⁹ There were few standard rules, no weight classes, and state athletic commissions would not sanction MMA bouts.⁵⁰ In 1996, Senator John McCain referred to MMA as “human cock-fighting” and called for states to ban MMA events.⁵¹ Political and public pressure led 36 states to ban MMA.⁵² In 1997, when Senator McCain became chairman of the Commerce Committee (which oversaw the cable industry), he put pressure on cable and pay-per-view providers to stop

⁴⁹ Deposition of Lorenzo J. Fertitta (March 23, 2017) [hereinafter FERTITTA TR.] at 147.

⁵⁰ Dave Meltzer, “The pitfalls that faced UFC before its television success,” *MMA Fighting* (November 16, 2013) available at <https://www.mmafighting.com/2013/11/16/5105738/the-pitfalls-that-faced-ufc-before-its-television-success>.

⁵¹ David Plotz, “Fight Clubbed,” *Slate* (November 17, 1999) available at http://www.slate.com/articles/briefing/articles/1999/11/fight_clubbed.html.

⁵² Ron Borges, “It was the Ultimate save; Business plan by Fertittas and White took UFC from the brink to the heights” *Boston Herald* (August 26, 2010) available at http://www.bostonherald.com/sports/other/ultimate_fighting/2010/08/business_plan_fertittas_and_white_took_ufc_brink_heights.

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airing MMA fights.⁵³ As a result, the potential number of PPV subscribers to UFC's events plummeted.⁵⁴

50. In the midst of this anti-MMA sentiment and decreased opportunity, the original founders of UFC decided to sell the organization. Lorenzo and Frank Fertitta purchased the UFC in 2001 for \$2 million, but, according to Mr. L. Fertitta, purchased little more than an "idea," along with some intellectual property and contracts with several satellite providers.⁵⁵ The UFC was not profitable, and the Fertittas invested their own capital to ensure its continued operations.⁵⁶ The company struggled for several years after it was acquired by the Fertittas. In approximately 2004, after several years of failure with losses of almost \$40 million,⁵⁷ Mr. L. Fertitta initially decided that Zuffa would shut down or sell the UFC in an attempt to recoup some of the capital the Fertittas had invested in the company.⁵⁸ Ultimately, however, the Fertittas chose to continue to invest in the UFC rather than give up on the failing business.⁵⁹

51. Following the acquisition of UFC, Zuffa expended significant resources in legitimizing MMA.⁶⁰ In addition to leveraging Lorenzo Fertitta's experience with state athletic commissions,⁶¹ Zuffa created a department devoted to regulatory issues and hired additional

⁵³ Dave Meltzer, "The pitfalls that faced UFC before its television success," *MMA Fighting* (November 16, 2013) available at <https://www.mmafighting.com/2013/11/16/5105738/the-pitfalls-that-faced-ufc-before-its-television-success>.

⁵⁴ David Plotz, "Fight Clubbed," *Slate* (November 17, 1999) available at http://www.slate.com/articles/briefing/articles/1999/11/fight_clubbed.html.

⁵⁵ FERTITTA TR. at 296.

⁵⁶ FERTITTA TR. at 296.

⁵⁷ Michael A. Hitt, R. Duane Ireland, Robert E. Hoskisson, *Strategic Management Cases: Competitiveness and Globalization* (10th Edition, 2013) at 360.

⁵⁸ FERTITTA TR. at 296. See also Ron Borges, "It was the Ultimate save; Business plan by Fertittas and White took UFC from the brink to the heights" *Boston Herald* (August 26, 2010) available at http://www.bostonherald.com/sports/other/ultimate_fighting/2010/08/business_plan_fertittas_and_white_took_ufc_brink_heights.

⁵⁹ FERTITTA TR. at 296-97.

⁶⁰ Andy Bull, "The Fight Game Reloaded: How MMA and UFC Conquered the World," *The Guardian* (March 4, 2016) available at <https://www.theguardian.com/sport/2016/mar/04/the-fight-game-reloaded-how-mma-conquered-world-ufc>.

⁶¹ Lorenzo Fertitta was a commissioner on the Nevada State Athletic Commission for approximately four years. (FERTITTA TR. at 14.)

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regulatory consultants.⁶² UFC then became was a prime mover in creating a unified set of rules for the sport and in convincing state athletic commissions to sanction MMA.⁶³ New Jersey was the first to do so followed by Nevada.⁶⁴ Zuffa later hired Marc Ratner, the former Executive Director of the Nevada State Athletic Commission who had experience dealing with athletic commissions and was well-connected.⁶⁵ The UFC's investments in these and other executives who could navigate the regulatory processes led to MMA being sanctioned by state athletic commissions in all 50 states by 2016.⁶⁶ Much of this change in the regulatory landscape was the direct result of work that Zuffa did, over a 15-year period, in standardizing the sport under a uniform set of rules and weight classes and money Zuffa spent in educating regulators about the sport of MMA.⁶⁷

52. Zuffa also worked to promote its athletes and events with consumers and raise the profile of MMA, even though at that time broadcasters were reluctant to take a meeting with the UFC, pay the UFC for broadcast rights, or risk losing advertisers by airing MMA related content.⁶⁸ Realizing that they needed broadcasting opportunities to increase the profile of the brand and MMA athletes, the Fertittas and Dana White proposed creating and producing an MMA reality show that would promote MMA athletes by highlighting their athletic skills and allowing

⁶² Michael A. Hitt, R. Duane Ireland, Robert E. Hoskisson, *Strategic Management Cases: Competitiveness and Globalization* (10th Edition, 2013), Case 25.

⁶³ Andy Bull, "The Fight Game Reloaded: How MMA and UFC Conquered the World," *The Guardian* (March 4, 2016) available at <https://www.theguardian.com/sport/2016/mar/04/the-fight-game-reloaded-how-mma-conquered-world-ufc> ("[Fertitta] approached a few key athletic commissions – Nevada, Texas, Florida – and, Fertitta says, asked them: 'How can we create a set of rules that will address whatever issues you have?'").

⁶⁴ Adam Hill, "A Timeline of UFC Rules: From No-Holds-Barred to Highly Regulated," *Bleacher Report* (April 24, 2013) available at <http://bleacherreport.com/articles/1614213-a-timeline-of-ufc-rules-from-no-holds-barred-to-highly-regulated>.

⁶⁵ John Eligon, "A Boxing Regulator Changes Corners," *New York Times* (November 24, 2006) available at <http://www.nytimes.com/2006/11/24/sports/othersports/24fight.html>.

⁶⁶ Bryan Armen Graham, "New York ends ban and becomes 50th state to legalize mixed martial arts," *The Guardian* (March 22, 2016) available at <https://www.theguardian.com/sport/2016/mar/22/new-york-legalizes-mma-ufc>.

⁶⁷ Michael A. Hitt, R. Duane Ireland, Robert E. Hoskisson, *Strategic Management Cases: Competitiveness and Globalization* (10th Edition, 2013), Case 25.

⁶⁸ FERTITTA TR. at 297.

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viewers to get to know the athletes on a personal level.⁶⁹ Although no cable network would buy the show, Spike TV offered to broadcast it if Zuffa paid the entire costs of production—\$10 million—which Zuffa did.⁷⁰ The resulting show, *The Ultimate Fighter*, significantly increased consumer demand for UFC events.⁷¹

53. In addition to changing public, legislative, and broadcasters' perception of the sport, the UFC worked to promote MMA athletes and grow both the athletes' brands and the UFC brand.⁷² For example, the UFC prominently features its athletes in advertising across a wide range of channels, including television, print, and internet sites, and in a wide variety of consumer products, including video games and action figures.⁷³

54. Additionally, UFC partnered with advertising agency PETROL to create visually and emotionally appealing marketing that focus on the athletes' backstories to get fans invested in the athletes themselves.⁷⁴ In another innovation, UFC also started broadcasting the first fights of an

⁶⁹ Ron Borges, "It was the Ultimate save; Business plan by Fertittas and White took UFC from the brink to the heights" *Boston Herald* (August 26, 2010) available at http://www.bostonherald.com/sports/other/ultimate_fighting/2010/08/business_plan_fertittas_and_white_took_ufc_brink_heights.

⁷⁰ Ron Borges, "It was the Ultimate save; Business plan by Fertittas and White took UFC from the brink to the heights" *Boston Herald* (August 26, 2010) available at http://www.bostonherald.com/sports/other/ultimate_fighting/2010/08/business_plan_fertittas_and_white_took_ufc_brink_heights. See also Deposition of Ike Lawrence Epstein (May 26, 2017) [hereinafter EPSTEIN TR.] at 200-202; Stuart Miller, "Defending the Belt; UFC hits 100 and Keeps Swinging," *Mulitchannel News* (July 6, 2009) available at <http://www.multichannel.com/news/cable-operators/defending-belt/329689>.

⁷¹ Andy Bull, "The Fight Game Reloaded: How MMA and UFC Conquered the World," *The Guardian* (March 4, 2016) available at <https://www.theguardian.com/sport/2016/mar/04/the-fight-game-reloaded-how-mma-conquered-world-ufc> (In the two years following the first season of *The Ultimate Fighter*, "UFC had a 1,258% increase in revenue, including a 1,700% increase in PPV sales.")

⁷² Jeff Beer, "How UFC is Taking the World's Oldest Sport Into the Future of Media," *Fast Company* (July 7, 2016) available at <https://www.fastcompany.com/3061603/how-ufc-is-taking-the-worlds-oldest-sport-into-the-future-of-media> ("The company has essentially taken a page from the WWE in hyping the personalities and talents of its individual fighters with show business bravado under the overall banner of the brand.")

⁷³ Stuart Miller, "Defending the Belt; UFC hits 100 and Keeps Swinging," *Mulitchannel News* (July 6, 2009), available at <http://www.multichannel.com/news/cable-operators/defending-belt/329689>

⁷⁴ Kristi Dosh, "The Evolution of UFC Event Marketing: From the Beginning to UFC 200," *Forbes* (July 9, 2016), available at <https://www.forbes.com/sites/kristidosh/2016/07/09/the-evolution-of-ufc-event-marketing-from-the-beginning-to-ufc-200/>.

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event on Facebook in order to gain fans and get a broader audience for less-known athletes.⁷⁵ The UFC's promotion of its athletes also included implementing rules that were designed to enhance athletes' safety and further legitimize the sport. For example, the UFC implemented the UFC Anti-Doping Program, which subjects all athletes who compete in UFC-promoted events to year-round, unannounced drug testing. As part of that program, the UFC contracted the United States Anti-Doping Association to act as an independent administrator of the policy.⁷⁶ Mr. White and the Fertittas also wanted to turn the UFC into a popular form of entertainment, and not just a sport.⁷⁷ In order to do so, their events had high end production value and a unique look and feel.⁷⁸

55. Dana White was also central to Zuffa's promotional efforts. Mr. White is arguably celebrity in his own right, and his persona appealed to the audience the UFC hoped to attract.⁷⁹ Mr. White uses social media to connect to fans and generate interest in UFC events, and today has over 4.8 million Twitter followers.⁸⁰ Mr. White worked to change the way MMA was marketed, with a new marketing campaign ("As Real As It Gets") that differentiated MMA from the staged and choreographed professional wrestling events with which it competed.⁸¹ White

⁷⁵ FERTITTA TR. at 194-195. See also Gregory Fernstein, "UFC and Its Gang of 4.6 Million Facebook Friends Body Slam Sports Broadcasting," *Fast Company* (February 4, 2011) available at <https://www.fastcompany.com/1723897/ufc-and-its-gang-46-million-facebook-friends-body-slam-sports-broadcasting>.

⁷⁶ USADA, "About USADA's Role in the UFC Anti-Doping Program," available at <https://ufc.usada.org/>; Andy Bull, "The Fight Game Reloaded: How MMA and UFC Conquered the World," *The Guardian* (March 4, 2016) available at <https://www.theguardian.com/sport/2016/mar/04/the-fight-game-reloaded-how-mma-conquered-world-ufc> ("The UFC's solution was to hire the best anti-doping expert it could find, Jeff Novitzky. He has joined the UFC from a 22-year career in federal law enforcement, the past 12 of them spent in anti-doping.")

⁷⁷ FERTITTA TR. at 172; Jeff Beer, "How UFC is Taking the World's Oldest Sport Into the Future of Media," *Fast Company* (July 7, 2016) available at <https://www.fastcompany.com/3061603/how-ufc-is-taking-the-worlds-oldest-sport-into-the-future-of-media>.

⁷⁸ FERTITTA TR. at 240.

⁷⁹ Greg Fernstein, "How Dana White Built a UFC Empire With Social Media," *Mashable* (June 8, 2010) available at http://mashable.com/2010/06/08/dana-white-ufc-social-media/#C_hk4zdPEgqH; FERTITTA TR. at 261-62.

⁸⁰ Greg Fernstein, "How Dana White Built a UFC Empire With Social Media," *Mashable* (June 8, 2010) available at http://mashable.com/2010/06/08/dana-white-ufc-social-media/#C_hk4zdPEgqH. See also <https://twitter.com/danawhite>.

⁸¹ Sean Hyson, "Dana White, the man, the sport, and the money," *Men's Fitness* available at <http://www.mensfitness.com/sports/mma/dana-white>.

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also pushed to feature the UFC in mainstream media, buying advertising in Maxim and Sports Illustrated and arranging for athletes to be featured on television programs such as Fox's *The Best Damn Sports Show Period*.⁸²

56. The importance of Mr. White to UFC's success is evident: When the UFC was purchased in 2016 by a consortium of investors, Mr. White's continued relationship with the UFC was part of the sales agreement because the purchasers felt that it was "really important" to keep Mr. White at the UFC.⁸³ Indeed, the purchasers considered Mr. White to be part of the "talent" they acquired in the sale of the company.⁸⁴ Similarly, UFC sponsor Anheuser Busch considers White to be an "A-Level Athlete" for purposes of its premium marketing campaigns.⁸⁵

57. In summary, in the years since Zuffa acquired the UFC, it helped to the sport of MMA into one of the fastest-growing sport in the world. These efforts by Zuffa, and Zuffa's skill in providing consumers with an attractive MMA product, grew the market for MMA, to the benefit of athletes, consumers, and competing promoters.⁸⁶

B. THE UFC HAS PRO-COMPETITIVELY INCREASED ATHLETES' PAY, OUTPUT, AND CONSUMER CHOICE

58. As I describe in detail in Section VIII of this report, compensation to Zuffa's athletes has increased considerably between 2005 and 2016. Controlling for athletes' characteristics and other factors that vary from year to year, I find that the average annual increase in real compensation per bout over this time period was about 18 percent. This is consistent with testimony from Zuffa executives.⁸⁷ There is also testimony and direct evidence that Zuffa pays

⁸² Sean Hyson, "Dana White, the man, the sport, and the money," *Men's Fitness* available at <http://www.mensfitness.com/sports/mma/dana-white>.

⁸³ Deposition of Brent Richard (July 20, 2017) [hereinafter RICHARD TR.] at 229-30; Meltzer, "The Pitfalls That Faced UFC Before Its Television Success" (The UFC's former owner explained: "The other piece of the puzzle we didn't have was Dana.")

⁸⁴ RICHARD TR. at 232; WME_ZUFFA_00001150 at p. 14.

⁸⁵ ZFL-1057314-53 at 14.

⁸⁶ Declaration of Rodney D. Fort, Ph.D. Submitted to the Federal Trade Commission on Behalf of Zuffa, LLC (December 1, 2011) [hereinafter FORT REPORT] at ¶¶ 39-41.

⁸⁷ Deposition of Denitza Batchvarova (January 25, 2017) [hereinafter BATCHVAROVA TR.] at 65; Deposition of Michael P. Mersch (July 14, 2017) [hereinafter MERSCH TR.] at 476-77.

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more than competing MMA promoters.⁸⁸ Moreover, Zuffa has increased the number of events offered over the years, to the benefit of consumers who have more choices among MMA events to watch.⁸⁹

59. As I discussed in Section III.A, Zuffa was the leader in laying the regulatory groundwork for acceptance of MMA as something other than a fringe sport. Without that work, and without the legitimization efforts Zuffa undertook, output would likely have been lower. That is, Zuffa was the leader in building the infrastructure and consumer acceptance needed before MMA could thrive. Without this work, neither athletes nor other MMA promoters could participate in MMA to the extent that they do today.

60. In addition to increasing overall output, Zuffa has increased the variety of MMA events and athletes available to U.S. consumers by bringing live and broadcast MMA events to all 50 states, diversifying the sport by bringing in athletes from all over the world to compete with one another under the UFC banner, and expanding its events roster to include between 13 and 16 international events (all broadcast in the U.S. and internationally) every year. One of Zuffa's key business initiatives was an expansion of its events to include international offerings and for developing new markets for MMA outside of the United States.⁹⁰ That expansion not only brought the UFC's events to other countries, but also brought such televised events to the United States.⁹¹ As part of its expansion to new international markets, the UFC has invested by scouting international talent and negotiating international broadcast agreements.⁹² This work, which

⁸⁸ FERTITTA TR. at 219-20.

⁸⁹ EPSTEIN TR. at 98-99; FERTITTA TR. at 188; Deposition of Kirk Hendrick (July 17, 2017) [hereinafter HENDRICK TR.] at 162-64.

⁹⁰ Levi Nile, "UFC and Their Plans for Global Expansion," *Bleacher Report* (January 16, 2014) available at <http://bleacherreport.com/articles/1926281-ufc-and-their-plans-for-global-expansion>.

⁹¹ Allan Snel "Export product: UFC dispatching fight shows to global venues," *Las Vegas Review Journal* (January 12, 2104) available at <https://www.reviewjournal.com/business/export-product-ufc-dispatching-fight-shows-to-global-venues/>.

⁹² Zane Simon, "UFC's Brazilian TV deals are a booming business," *Bloody Elbow* (October 31, 2013) available at <https://www.bloodyelbow.com/2013/10/31/5051454/ufc-brazilian-tv-deals-booming-business-millions-mma-news>; Jesse Holland, "UFC International expansion plans include Macau in 2012, Singapore in 2013," *Bloody Elbow* (November 4, 2011) available at <https://www.bloodyelbow.com/2013/10/31/5051454/ufc-brazilian-tv-deals-booming-business-millions-mma-news>.

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required the UFC to hire employees and open offices all over the world,⁹³ created additional MMA events for consumers as well as providing expanded opportunities and experiences for athletes.

C. THE UFC SUCCEEDED BY BUILDING AND PROMOTING TALENT

61. Plaintiff's foreclosure theory presumes that competing MMA promoters can only be successful by enticing UFC athletes to switch to them. However, the history of MMA, both for UFC and for competing promoters, shows that identifying, developing, and promoting talent is the path to success. A key to being able to run a successful promotion is to bring in promising athletes, develop them, enter them into a series of bouts to identify successful athletes, and promote those athletes to the public—all strategies where UFC has proven to be very successful.⁹⁴ All promoters have equal access to up-and-coming athletes and to sign them before they become so-called headliners. Part of Zuffa's success has been the identification of talent early on in MMA athletes' careers and to help them on their rise to stardom.

62. As UFC President Dana White described:

There's tons of fighters every single weekend. This weekend, there's fights happening all over the world. There's MMA promoters literally all over the world. And there are fights happening every weekend, this week, next weekend, last weekend. These fights are happening. Then what you do is you go out, you know, there's a team at the UFC, there's three of us, who go out, and we look at people.

You know, what's crazy? Think about this. Four years ago, Conor McGregor was available to everybody. Bellator, ONE FC, UFC, everybody out there. Do you know who went out – he was – he was 7 and 2. Okay? Guy's record was 7 and 2. There's a zillion of them, right? I went and got Conor McGregor. I saw him, I liked his personality, and I turned him into a star, one of the biggest stars on earth right now. Bellator could have done that, ONE FC could have done it, they all could have done it. Four years ago, he was available to everybody.⁹⁵

63. Zuffa has also excelled at promoting up-and-coming talent and making them into household names. Because the number of MMA athletes who may be developed into "stars" is

⁹³ Levi Nile, "UFC and Their Plans for Global Expansion," *Bleacher Report* (January 16, 2014) available at <http://bleacherreport.com/articles/1926281-ufc-and-their-plans-for-global-expansion>.

⁹⁴ Deposition of Joseph Silva (June 7, 2017) [hereinafter J. SILVA TR.] at 61-62; FERTITTA TR. at 223-25, 270-71.

⁹⁵ Deposition of Dana F. White (August 9, 2017) [hereinafter WHITE TR.] at 332-33.

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limited, successful MMA promoters must be able to identify and develop these potential stars. As Mr. White explained “[I]t’s not like, you know, stars are just out there popping up everywhere. You have to be able to know who you think is talented, who you think could possibly be, you know, a world champion or a big fighter some day, then you turn these people into stars.”⁹⁶ Zuffa’s success at identifying MMA athletes early on in their careers and promoting them successfully into household names has been a cornerstone of its long-term value and success.

IV. THE UFC FACES SIGNIFICANT COMPETITION**A. LOW BARRIERS TO ENTRY MEAN THAT THE UFC FACES COMPETITION**

64. New and existing MMA promoters have ready access to inputs and facilities needed to stage MMA events, including access to MMA athletes, venues, and sponsors. These promoters have access to a large number of MMA athletes, and they can produce and distribute their events through broadcasters and the internet (in addition to selling tickets to view the event in person). Given the rising popularity of the sport, many sponsors are likely interested in associating with MMA promoters, and there are myriad venues in which to stage live MMA events. In addition, as discussed above, Zuffa has lowered barriers to entry by assisting in the sanctioning of MMA by state athletic commissions and increasing consumer acceptance of the sport. Zuffa has effectively created the MMA market platform in which promoters and athletes compete. Partly as a result of Zuffa’s efforts, barriers to entry in the market for MMA promotion are low,⁹⁷ and Zuffa has faced significant competition from rival MMA promoters in the U.S. and around the world.

65. As an initial matter, there is a large potential supply of MMA athletes that a new promoter could employ. In addition to the athletes identified by Dr. Singer in his Input Market definitions, MMA athletes have come from, among other places, collegiate or Olympic wrestling

⁹⁶ WHITE TR. at 331.

⁹⁷ FERTITTA TR. at 122-23; 30(b)(6) Deposition of Zuffa, LLC by Ike Lawrence Epstein (December 2, 2016) [hereinafter EPSTEIN ACQUISITIONS TR.] at 120-22.

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or boxing programs, martial art academies, the military, and other professional sports.⁹⁸ Production and distribution costs are relatively low, as evidenced by the hundreds of MMA promotions referenced by Dr. Singer and the large number with television distribution deals.⁹⁹ Broadcasters have also demonstrated a willingness to switch from carrying matches from one MMA promoter to another, including Spike TV (now owned by Viacom, Bellator's parent organization¹⁰⁰) switching from showing the UFC to showing Bellator in 2013.¹⁰¹ The enormous growth in streaming as an alternative to broadcast TV makes it increasingly likely that successful MMA promoters can bypass broadcast TV and build an audience directly over the internet.¹⁰² There are few sunk costs invested by incumbent firms, there are no technical barriers such as intellectual property rights or research and development costs necessary to entry, and there are many potential venues and sponsors available to potential entrants.¹⁰³

66. There are many venues of varying sizes across the United States and North America at which an MMA promoter can host an MMA event. The UFC does not have any exclusive agreements with venues, and competitors are free to use the same venues the UFC uses, other than for a window of time, *e.g.* 45 or 60 days, before and after a UFC event.¹⁰⁴ This practice, which is known as a "clearance window," is designed to prevent consumer confusion at the time of ticket purchase (*i.e.*, protecting a promoter's investment and its brand from free-riding by competitors).¹⁰⁵ Between 2005 and 2015, the UFC booked events at only 127 venues worldwide.¹⁰⁶ This leaves a significant number of venues at which other MMA promoters could

⁹⁸ FORT REPORT at ¶ 24; Declaration of Andrew R. Dick, Ph.D., Submitted to the Federal Trade Commission on Behalf of Zuffa, LLC (December 1, 2011) [hereinafter DICK REPORT] at ¶ 47.

⁹⁹ SINGER REPORT at ¶¶ 104, 111; DICK REPORT at Exhibit 14.

¹⁰⁰ Viacom, "Spike," *available at* <http://www.viacom.com/brands/pages/spike.aspx>

¹⁰¹ DICK REPORT at ¶¶ 51-52.

¹⁰² FERTITTA TR. at 129.

¹⁰³ FORT REPORT at ¶ 26; DICK REPORT at ¶ 49.

¹⁰⁴ 30(b)(6) Deposition of Zuffa, LLC by Peter Dropick (December 1, 2016) [hereinafter DROPICK 30(B)(6) TR.], Exhibit 51, Tab A at 2-6.

¹⁰⁵ DROPICK 30(B)(6) TR. at 22, 24-25.

¹⁰⁶ DROPICK 30(B)(6) TR., Exhibit 51, Tab 1.

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book events, in addition to periods outside the “clearance window” when the venues that host Zuffa events are free to contract with other promoters. In 2016, Zuffa held events at 23 venues in North America, and out of those 23 venues, 11 had not been used by Zuffa between 2005 and 2015. (See Exhibit 1.) With two exceptions,¹⁰⁷ Zuffa used each venue only one time during 2016, leaving the large majority of the year available for other MMA events at these venues, even taking into account the clearance windows. There are also 73 venues in North America that were used by Zuffa between 2005 and 2015 which Zuffa did not use in 2016, leaving them available for alternative MMA events the entire year.¹⁰⁸ In fact, Exhibit 2 provides examples of promoters, including Bellator, King of the Cage, Rage in the Cage and Extreme Challenge, that have booked events at North American venues from 2005-2016 where Zuffa has also booked an event. The MMA promoters listed in Exhibit 2 have collectively booked over 1,300 events at over 430 different venues¹⁰⁹ in North America, including Kansas Star Arena (Mulvane, Kansas); Planet Hollywood Resort and Casino (Las Vegas, Nevada); Ocean Center (Daytona Beach, Florida); New Orleans Convention Center (New Orleans, Louisiana); and Bren Events Center (Irvine, California).

67. The barriers to obtaining sponsors are also low. There are thousands of sponsors available to MMA promoters, as evidenced by the myriad sponsors on MMA promoters’ websites and at their events. Many of Zuffa’s competitors are sponsored by large corporations. (I also note that Zuffa’s work to transform MMA from a fringe to mainstream sport may have aided competing MMA promotions in securing these sponsors.) Bellator lists Spike, Monster Energy Drinks, Dave & Busters, Miller Lite, and Blackheart Premium Spiced Rum as sponsors on its website.¹¹⁰ The Professional Fighters League, formerly WSOF, features Alienware, Autoshipper.com, Fite.tv, and other sponsors on its website.¹¹¹ ONE Championship notes on its website that it “has

¹⁰⁷ The UFC scheduled multiple events at two venues in Las Vegas. Because the UFC is based in Las Vegas, it is less expensive for Zuffa to hold events in that city. (See Deposition of Peter Dropick (May 4, 2017) at 196.)

¹⁰⁸ Calculations based on Sherdog data in Singer Backup. To the extent that venues closed or venue names changed, this number may be an over-estimate.

¹⁰⁹ To the extent that venue names changed, this may be an over-estimate.

¹¹⁰ Bellator MMA, “About Us” *available at* <http://bellator.spike.com/about>.

¹¹¹ Professional Fighters League *available at* <http://www.professionalfightersleague.com/>.

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a coveted roster of blue-chip Fortune 500 sponsors, including the likes of Disney, Marvel, LG, Sony, Facebook, Haier, Kawasaki, L'Oréal, Casio, Bayer, and more.”¹¹² Certain sponsors like Alienware and Monster Energy also sponsor Zuffa in addition to competing MMA organizations.¹¹³

68. It may be true that eliminating the challenged contract provisions could promote entry by competing promoters, at least temporarily, because new entrants could expropriate existing Zuffa investments in its athletes. But such entry would not be efficient or procompetitive. Suppose Zuffa's contract provisions are found to be anticompetitive. Then a potential competitor could recruit and contract with the existing stock of developed Zuffa athletes, enjoying the fruits of Zuffa's past investments in developing those athletes. This would create a transfer of wealth to the stock of existing Zuffa athletes, because they would capture most of the returns on Zuffa's investments. But this is a temporary increase in the wealth of current MMA athletes. There will be less investment in subsequent cohorts, because promoters will not be able to capture the returns.¹¹⁴ The result will be a less valuable product for consumers, and lower earnings of MMA athletes.

B. THE UFC HAS AND WILL CONTINUE TO FACE SIGNIFICANT COMPETITION

69. Zuffa faces significant competition from other MMA promoters. While Zuffa is a successful promoter of live MMA events, Zuffa currently competes with other promoters in both Input and Output Markets. Zuffa has faced extremely well-funded competition in Bellator, which is backed by Viacom and broadcast on Spike, a network that previously aired UFC events, as

¹¹² ONE Championship, “About One” *available at* <https://onefc.com/about-one/>.

¹¹³ 30(b)(6) Deposition of Zuffa, LLC by Michael Mossholder (November 30, 2016) [hereinafter MOSSHOLDER 30(B)(6) TR.] at 80-81.

¹¹⁴ Deposition of Carlos Silva (April 18, 2017) [hereinafter C. SILVA TR.] at 196-97 (acknowledging that “one of the benefits of having exclusive, multifight contracts that you can see a return on investment when you invest with a fighter and you have some time with them to build them up”); MERSCH TR. at 164-65 (explaining that contractual exclusivity was important to allowing a promotion “to maximize and to promote that fighter as a way of building the stature and notoriety of the fighter with a goal towards not only benefiting the fighter by increasing their stature within the sport, within the industry, but also by allowing him to become then a much more marketable asset within the UFC infrastructure.”)

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well as competition from already-popular and fast-growing MMA promoters like ONE Championship, the Professional Fighters League, and Absolute Championship Berkut.

70. Bellator is a prime example of how new promoters can enter the market and rapidly develop into a significant competitor. Bellator started promoting fights in 2009 (well after UFC had been established in the marketplace) after signing a deal for a series of MMA matches on ESPN Deportes.¹¹⁵ Following on that success, Bellator was acquired by Viacom in 2011, and now all of its matches are broadcast on Viacom's Spike TV network, with millions of fans watching Bellator's recent main events on cable TV. Bellator events have repeatedly attracted more viewers than UFC events and have reached up to 2.7 million viewers.¹¹⁶ In addition, other promoters have recognized that Bellator has a significant amount of monetary resources with which to compete.¹¹⁷

71. Among other competitors, the Professional Fighters League began as the World Series of Fighting in 2012 (during the alleged Class Period); the promotion changed its name in April 2017. The Professional Fighters League has a broadcast agreement with NBC Sports, a cable network, and with other networks around the world. A recent event drew nearly a million viewers in the U.S.¹¹⁸ Plaintiff Jon Fitch signed a contract with the Professional Fighters

¹¹⁵ Steve Barry, "Bellator Fighting Championships Announce Agreement with ESPN Deportes," *MMA Convert*, (November 19, 2008) available at <http://www.mmaconvert.com/200811119/bellator-fighting-championships-announces-agreement-with-espn-deportes/>.

¹¹⁶ Dave Meltzer, "Bellator tops UFC in weekend ratings by 96,000 viewers," *MMA Fighting* (September 26, 2017) available at <https://www.mmafighting.com/2017/9/26/16371222/bellator-tops-ufc-in-weekend-ratings-by-96000-viewers>; Mookie Alexander, "Ratings: Bellator 149 peaked at 2.7 million viewers, UFC fails to average 1 million," *Bloody Elbow* (February 23, 2016) available at <https://www.bloodyelbow.com/2016/2/23/11099616/ratings-bellator-149-peaked-at-2-7-million-viewers-ufc-fails-to-average-1-million-mma-news>.

¹¹⁷ Deposition of Jeffrey Aronson (April 25, 2017) at 29-30 ("I think the issue is that you have companies like Bellator, who are backed by Viacom, who, you know, have more money than UFC. I just think UFC works incredibly smart and markets incredibly well."). Mr. Aronson is the CEO of Titan FC, an MMA promotion.

¹¹⁸ Jason Cruz, "Updated: WSOF 34 draws 951,000 viewers, prelims draw 71,000 on NBCSN," *Payout* (January 4, 2017) available at <http://mmapayout.com/2017/01/wsof-34-draws-941000-viewers-prelims-draw-71000-on-nbcfn/>.

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League, then known as the World Series of Fighting, and won the welterweight title as part of the promotion.¹¹⁹

72. As an example of the speed with which new MMA promoters can get established in the marketplace, Russian promoter Absolute Championship Berkut promoted its first event in October 2012, six events in 2013, 22 events in 2016, and is currently on track to promote 27 events in 2017.¹²⁰

73. AXS TV, a cable network co-owned by Mark Cuban, routinely broadcasts MMA events. The network, which formerly was called HDNet, once used the slogan, “The Home of MMA,” and promoted its own MMA events under the HDNet name.¹²¹ Now, however, the network takes advantage of the wide availability of competing MMA promoters, broadcasting events from several of them, rather than promoting its own events, and claims to present more live MMA events than any other television network.¹²²

74. All of these promoters and others around the world not only compete against UFC in the downstream market, but also compete vigorously for MMA athletes: both new and up and coming talent such as Abubakar Nurmagomedov (Professional Fighters League), Petr Yan (Absolute Championship Berkut), Mateusz Gamrot (KSW), and Angela Lee (ONE Championship).¹²³ For established MMA athletes in the free agent market, Bellator, the Professional Fighters League, ONE Championship, and others have on many occasions signed highly ranked athletes that previously fought in the UFC. Among them is Plaintiff Jon Fitch, who fought in the UFC from 2005 to 2013, then signed with WSOF and is now its welterweight

¹¹⁹ “PFL: Daytona Highlights: Jon Fitch gets first finish in more than 10 years,” *MMA Junkie* (July 1, 2017) available at <http://mmajunkie.com/2017/07/pfl-daytona-highlights-video-jon-fitch-submission-brian-foster>.

¹²⁰ Sherdog.com, “Recent Events, Absolute Championship Berkut” available at <http://www.sherdog.com/organizations/Absolute-Championship-Berkut-8185>.

¹²¹ James Iannotti, “HDNet reaches television agreements with DREAM and K-1,” *SBNation* (November 4, 2008) available at <https://www.mmamania.com/2008/11/24/hdnet-reaches-television-agreements-with-dream-and-k-1>.

¹²² AXS TV Fights available at <http://www.axs.tv/programs/fights/>.

¹²³ Patrick Wyman, *The Top 25 MMA Prospects for 2017, Part 2*, Bleacher Report (January 30, 2017) available at <http://bleacherreport.com/articles/2687394-the-top-25-mma-prospects-for-2017-part-2>.

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champion. Similarly, Plaintiff Brandon Vera competed in the UFC from 2005 through 2014, and then signed with ONE Championship, where he is now the heavyweight champion.

75. Bellator has signed a number of athletes who formerly competed for the UFC, including Rory MacDonald, Benson Henderson, Matt Mitrione, Phil Davis, Lorenz Larkin, Gegard Mousasi, Josh Thomson, and Rampage Jackson. Bellator also competes with UFC and other promoters to sign promising new athletes. Among the top prospects signed by Bellator are Aaron Pico, Ed Ruth, and Tyrell Fortune. In addition, Bellator has developed its own stars, including Muhammed Lawal, Michael Chandler, and Michael Page.¹²⁴

76. Other MMA promoters have testified that they compete for high-level athletes with other promoters including UFC. Jeremy Lappen, formerly the head of fight operations for EliteXC, testified that he “signed many fighters that were very high-level fighters.”¹²⁵ Shannon Knapp, President of Invicta FC, testified that she competes with the UFC for athletes.¹²⁶ Carlos Silva, CEO of the Professional Fighters League, testified that he competed to sign athletes around the world and that there was a large talent pool from which he could sign MMA athletes.¹²⁷ Matt Hume, Vice-President of Operations and Competition for ONE Championship, stated that ONE Championship scouts and seeks to sign athletes from other promotions including Bellator and the UFC and that “Group One Holdings competes with Zuffa to sign professional MMA fighters. One Championship is not a minor league or feeder league for the UFC.”¹²⁸ Since Zuffa’s inception, it has been outbid for what Joe Silva called “name fighters” by other MMA promotions.¹²⁹

¹²⁴ Sherdog.com, “Muhammed Lawal” *available at* <http://www.sherdog.com/fighter/Muhammed-Lawal-29858>; Sherdog.com, “Michael Chandler” *available at* <http://www.sherdog.com/fighter/Michael-Chandler-50829>; Sherdog.com, “Michael Page” *available at* <http://www.sherdog.com/fighter/Michael-Page-91937>.

¹²⁵ Deposition of Jeremy Lappen (February 28, 2017) at 138.

¹²⁶ Deposition of Shannon Knapp (April 11, 2017) [hereinafter KNAPP TR.] at 71, 220-21.

¹²⁷ C. SILVA TR. at 204.

¹²⁸ ONECHAMPIONSHIP000006.

¹²⁹ Deposition of Joseph Silva (June 7, 2017) [hereinafter J. SILVA TR.] at 49 (naming Pride, Bellator, Extreme Fighting, World Combat Championships, Martial Arts Reality Superfighting, Affliction, and Strikeforce as competitors who have outbid the UFC for name athletes).

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77. Bellator, ONE, and the Professional Fighters League, which Dr. Singer dismiss as competitively insignificant, are more financially stable, well-established, and put on more events than the promotions Zuffa acquired. Bellator is a major and well-financed competitor that has already attracted up to 2.7 million viewers for its events (beating the UFC's peak viewership by 1.5 million viewers),¹³⁰ and, as explained above, has signed well-recognized former UFC athletes as well as developed high-level talent from within. In addition, as explained above, ONE and Professional Fighters League have had success recruiting and signing talented athletes.

78. In Exhibit 3, I compare the annual number of events for the promoters acquired by Zuffa (at their pre-acquisition peaks) versus the number of events held in 2016 for several of Zuffa's current competitors. Of the acquired promoters, Strikeforce held the most events at its peak, with 15 events in 2010, while Pride peaked at 11 events in 2002, WEC at 7 events in 2006, and WFA at 2 events in 2002. In contrast, Absolute Championship Berkut, Bellator, and ONE all had more events in 2016 than Strikeforce did at its peak, with 22, 22, and 16 events, respectively. Another promoter, Professional Fighters League, held 8 events in 2016, more than both WEC and WFA at their peaks. Finally, as an example of a current competitor's large viewership and potential for growth, ONE has been able to attract a significant number of viewers—which the promoter touted as “exponential growth” from 2014 to 2017 and a “1,000 times increase” in the number of video viewers—and reportedly has a significant presence on social media.¹³¹

79. Although Zuffa has always faced significant competition from MMA promoters, not all MMA promoters have been successful. MMA promotions have failed for a variety of reasons that have nothing to do with any alleged anticompetitive conduct on the part of Zuffa. For example, Pride fell into financial hardships after its alleged connections with the Yakuza,

¹³⁰ Mookie Alexander, “Ratings: Bellator 149 peaked at 2.7 million viewers, UFC fails to average 1 million,” *Bloody Elbow* (February 23, 2016) available at <https://www.bloodyelbow.com/2016/2/23/11099616/ratings-bellator-149-peaked-at-2-7-million-viewers-ufc-fails-to-average-1-million-mma-news>.

¹³¹ Steve Feiner, “ONE Championship attracts massive TV ratings with recent blockbuster events,” *Huffington Post* (May 11, 2017) available at https://www.huffingtonpost.com/entry/one-championship-attracts-massive-tv-ratings-with-recent_us_5914fb56e4b02d6199b2edd8; ONE Championship, “ONE Championship Television Ratings Show Incredible Growth in Last Three Years” (April 26, 2017) available at <https://onefc.com/articles/one-championship-television-ratings-show-incredible-growth-in-last-three-years/>.

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Japanese organized crime, resulted in the loss of a key television deal.¹³² Affliction had been run by inexperienced MMA promoters and was forced to cancel a major event due to a key athlete failing a drug test for performance-enhancing drugs, leaving it unable to meet its contractual obligations.¹³³ Strikeforce's financial state was poor and worsening partially as a result of an unfavorable contract it had entered into with Showtime.¹³⁴ Zuffa acquired some of these failing competitors which, as discussed below, led to a variety of procompetitive efficiencies for Zuffa and benefits for athletes and consumers. Importantly, as some competitors left the market, new competitors entered the market and took their place, reflecting the low entry barriers discussed previously.

V. ZUFFA'S CONTRACTUAL PROVISIONS ARE PROCOMPETITIVE

80. Dr. Singer claims that Zuffa signed long-term, exclusive agreements with athletes that contained provisions permitting Zuffa to extend the duration of the contract unilaterally and indefinitely. Dr. Singer also claims that these agreements constitute the primary vertical component of the conduct that harmed competition.¹³⁵ However, the contract provisions at issue are commonly used by MMA promoters that could not plausibly exercise monopsony power, which is direct evidence that such provisions have procompetitive purposes and effects.

A. COMPETING MMA PROMOTERS USE SIMILAR CONTRACT PROVISIONS

81. One way to assess whether Zuffa's contract provisions have pro-competitive purposes is to look at other MMA promoters that could not plausibly exercise monopoly power to see if they also use similar contract provisions. The presence of the same contract provisions in these competitors indicates that the provisions serve a purpose separate and apart from any exercise of market power.

¹³² EPSTEIN ACQUISITIONS TR. at 88-90; FERTITTA TR. at 82-87.

¹³³ FERTITTA TR. at 266-67; EPSTEIN ACQUISITIONS TR. at 150-51; Deposition of Thomas J. Atencio (February 9, 2017) [hereinafter ATENCIO TR.] at 116.

¹³⁴ ZFL-1212232-59 at 47, citing ZUF-00102396, ZUF-00104944, DICK REPORT at Exhibit 26; EPSTEIN ACQUISITIONS TR. at 185.

¹³⁵ SINGER REPORT at ¶ 64.

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82. Many of the provisions that Dr. Singer considers to be exclusionary have been included in Zuffa contracts since 2001, long before the start of the Class Period and at a time when Zuffa could not have plausibly exercised either monopoly or monopsony power. (See Exhibit 4)

83. Similar contracts are used by other promoters that are not alleged to have monopsony power, nor could they plausibly exercise such power. Based on a sample of Bellator agreements from 2010 to June 2017,¹³⁶ all of Bellator's PAR agreements contain the same kinds of provisions used by Zuffa, as shown in Exhibits 5 and 6.¹³⁷ Furthermore, it is notable that named plaintiff Brandon Vera's 2014 contract with ONE Championship contained most of the same provisions.¹³⁸

84. The use of such provisions by entities that could not plausibly possess monopsony power (Zuffa in its early years, and its current competitors) indicates that the provisions in these contracts have a procompetitive purpose. As I describe in the following sections, firms often use provisions such as these for procompetitive reasons, such as to provide incentives for investment in human and brand-name capital, reduce transaction costs, and prevent free riding.

¹³⁶ The sample of Bellator agreements includes agreements associated with 20 percent of Bellator athletes who were active between 2010 and June 2017. For this set of athletes, the sample includes all agreements associated with these athletes from 2010 to June 2017. (Order re Motion to Quash, *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D.Nev.) (June 13, 2017).) In each of the agreements in this sample, the name of the athlete and the dates associated with the agreement have been redacted. In my analysis, I follow Dr. Singer's approach and include only agreements that have been signed by both parties. I assume that a signature is in place when the signature block is redacted.

¹³⁷ The sample of Bellator agreements includes 43 executed single-bout contracts that did not appear to be associated with a PAR agreement. These single-bout contracts are typically shorter in duration and have fewer provisions than the PAR agreements. They also appear to be used for lower-skill athletes; for example, the average to-show amount on these contracts was \$2,169, compared to \$17,494 for the first bout on a Bellator PAR agreement, and \$23,956 for the first bout on a Zuffa PAR agreement signed between 2010 and 2015. Because these single-bout contracts are different from the PAR agreements and appear to be used for lower-skilled athletes, I summarize the Bellator single-bout agreements separately in Exhibits 7 and 8.

¹³⁸ LEPLAINTIFFS-0042863-87. This agreement includes the same categories of provisions listed in Exhibits 5 and 6. The nature of the provisions are similar, with two exceptions: first, the exclusive negotiation period begins at least 6 months before the term end and continues for up to 60 days. If no agreement is reached, the athlete can begin negotiations with other parties. Second, ONE has the right to match outside offers for 6 months after the exclusivity period or term end, whichever is later. The median right to match period in Zuffa and Bellator contracts is 12 months, as shown in Exhibit 10.

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B. EXCLUSIVITY AND MULTI-BOUT CONTRACTS ASSIST IN PROTECTING PROMOTERS' INVESTMENTS AND BUILDING A BUSINESS

85. In the MMA marketplace, many aspects of the contracting structure between promoters and athletes are best understood as a solution to a ubiquitous free riding problem.

86. Generally speaking, free riding can arise when two parties are engaged in a repeated economic relationship. The success of that relationship depends on one or both parties making investments that increase the value of collaboration. But in some cases, one party may be able to capture the investments of its partner by switching to another partner—the capital resulting from the investments are not specific to the original parties. This ability to free ride on the first partner's investments discourages that firm from making investments in the first place.¹³⁹ For example, an insurance company that sells through independent agents can increase demand for its products by advertising. However, once potential customers respond to the advertising by contacting the independent agent, the agent may have an incentive to steer customers to other insurers that do not spend as much on advertising, and therefore can offer more attractive pricing to the customer and to the agent.¹⁴⁰ To prevent such free riding, insurers that invest heavily in advertising may use exclusive agents rather than independent agents representing multiple insurers, and may restrict the ability of agents to take their client list with them if they leave to represent another insurer. Otherwise, the insurer would not generate as much return from its advertising and market development, and would have less incentive to promote its products.

87. Both athletes and promoters make considerable investments that increase the value of the product offered to the public: athletes through their training, and promoters through promoting MMA events and athletes. However, there is an important difference between these investments. Investments in training borne by the athletes themselves are not subject to free riding because training is embodied in the individual athlete: when skilled athletes switch promoters, their embodied skills go with them to the new promoter. The original promoter cannot transfer those skills to a new athlete, so the athlete retains the ability to collect the returns on his own training investments. In contrast, a promoter's investments in an athlete increase the general

¹³⁹ See Dennis W. Carlton and Jeffrey M. Perloff, *Modern Industrial Organization* (2005) at Chapter 12, p. 414.

¹⁴⁰ Howard P. Marvel, "Exclusive Dealing," *The Journal of Law and Economics*, vol. 25 (April 1982).

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marketability and publicity of that athlete, which are embodied in the athlete's MMA reputation or identity. If an athlete switches promoters, the investments made by the original promoter continue to make the athlete more marketable and valuable with the new promoter. Absent contractual restrictions or other means of compensating the original promoter, a competing promoter can free ride on the investments made by the original promoter by hiring the established athlete. With no limitations on switching among promoters, this free riding would reduce the investments made by promoters in MMA events, and decrease the value of MMA events to consumers, athletes, and promoters.

88. Dr. Singer acknowledges that Zuffa is responsible for all costs associated with its productions,¹⁴¹ and also that athletes sign a PAR agreement with Zuffa that grants Zuffa "the exclusive right to promote and arrange all of the Fighter's Bouts."¹⁴² Thus, all promotional investments for bouts are undertaken by Zuffa, which is the party best positioned to make such investments. Given the potential for free riding on these investments by competing promoters, the contractual arrangements in PARs are designed to limit free riding and give Zuffa an incentive to promote upcoming bouts and up-and-coming athletes. For example, athletes contract for multiple bouts. Multi-bout contracts provide an incentive to sign and promote athletes in the early stages of their careers because Zuffa will have the opportunity to reap a return on its investment near the end of the multi-bout contract if it has correctly identified talent and promoted the athlete successfully. Without such contracts, Zuffa might have an incentive to disproportionately promote matches featuring established athletes.

89. Other elements of the alleged Challenged Conduct can also be understood as either a consequence of or a response to the concern that competing MMA promoters will free ride on promotional investments. For example, Dr. Singer lists as a vertical restraint of trade a provision that restricts competing MMA promoters that contract with athletes that have left the UFC from using video clips of previous UFC fights to promote upcoming fights.¹⁴³ But this is simply a reflection of Zuffa exercising its intellectual property rights over copyrighted works. The

¹⁴¹ SINGER REPORT at ¶ 21.

¹⁴² SINGER REPORT at ¶ 71; SINGER REPORT at n. 60.

¹⁴³ SINGER REPORT at ¶ 74.

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purpose of copyright law is to provide creators of intellectual property with an opportunity to be rewarded for their creative effort. This restriction on using Zuffa's video clips guards against what would be a clear example of free riding on UFC's promotional investments: using clips of UFC bouts to promote athletes who have switched to competing promoters. Without the restriction, UFC would have less incentive to promote those events in the first place. Similarly, the champion's clause ensures that promoters will earn returns from the demand stimulation created by promoting a championship bout, which accrue not only to that bout but also to subsequent fights for whomever is crowned champion. Such restrictions are used in other publicity-based businesses, especially professional sports. For example, the licensing arm of the NBA (NBA Properties, Inc.) has the exclusive right to license for commercial purposes the use of the names, symbols, emblems, designs, logo identifications and uniforms of the NBA and its member teams, as well as the names and likenesses of current NBA players on a group basis."¹⁴⁴ While LeBron James can exploit his individual likeness as a spokesperson for Kia, he cannot do so while wearing his Cleveland Cavaliers jersey. Such practices are not anticompetitive.

C. CONTRACTUAL PROVISIONS REDUCE TRANSACTION COSTS AND INCREASE EFFICIENCIES

90. One of the key developments in economic theory in the last century was the recognition that transaction costs can severely limit the gains from trade realizable through arm's-length transactions. In the presence of such costs, organizational forms and contracts are developed to facilitate trade, producing more efficient market outcomes.¹⁴⁵ This section of my report examines the substantial transaction costs associated with setting up and promoting interest in MMA

¹⁴⁴ Prospective NBA License Application, *available at* http://www.nba.com/media/NBAP_Licensee_Application.pdf.

¹⁴⁵ The list of Nobel laureates in economics demonstrates the fundamental role of transaction costs in shaping economic theory. At least four laureates, Ronald Coase, Oliver Williamson, Oliver Hart and Bengt Holmstrom, were specifically commended for their contributions to understanding how transaction costs shape economic institutions, and transaction costs play a key role in the cited contributions of other laureates, including Douglass North and Elinor Ostrom. (https://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1991/press.html; https://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1993/press.html; https://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2009/advanced-economicsciences2009.pdf; https://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2016/holmstrom-facts.html; https://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2016/advanced-economicsciences2016.pdf)

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matches, and the implications of those transaction costs on the MMA marketplace, particularly the form of MMA-producing firms and the types of contracts those firms use.

91. In MMA, one role of a promoting firm, such as Zuffa, is in organizing matches between athletes. While, in principle, a promoter representing one athlete could negotiate a match against an athlete represented by a second promoter in a one-off transaction, in practice, the payoffs for both athletes and consumers in creating optimal bouts complicate the negotiations, making them impractical. Dr. Singer gives an example of these misaligned incentives based on the importance to athletes of matches with higher-ranked athletes, which allow them an opportunity to move up in the rankings. In order for one athlete to be matched with a higher-ranked athlete, the higher-ranked athlete has to agree to a match with the lower-ranked athlete. As discussed by Dr. Singer, that can be a lose-lose proposition for the higher ranked athlete—winning the match can actually be harmful, and losing is definitely harmful—particularly if the opponent is talented but less well-known.¹⁴⁶ While boxing has independent sanctioning bodies that can play a role, however imperfect, in negotiating matches between athletes,¹⁴⁷ MMA does not have independent sanctioning organizations.¹⁴⁸ Thus, there is no independent arbiter in MMA that can resolve the disparate incentives among different athletes for subsequent fights and ensure that beneficial matches will take place.

92. The MMA marketplace resolves the inherent difficulties involved in arranging and promoting matches by vesting match-creating authority in a promoting firm, so the firm determines the matches for its contracted athletes.¹⁴⁹ The contractual authority to arrange matches ensures that the promoter can pair opponents that will generate the most fan interest, promote its events, and drive revenue, to the benefit of consumers, the promoter, and its athletes. The promoter, by taking into consideration its interests and those of athletes when choosing

¹⁴⁶ SINGER REPORT at ¶ 80.

¹⁴⁷ Expert Report of Andrew Zimbalist (*Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*) Case No. 2:15-cv-01045-RFB-PAL (D.Nev.) (August 30, 2017) [hereinafter ZIMBALIST REPORT] at ¶ 92. As noted in that report, boxing sanctioning organizations can intervene when promoters for different athletes are unable to reach an agreement about compensation. ZIMBALIST REPORT at ¶ 94.

¹⁴⁸ SINGER REPORT at ¶ 17.

¹⁴⁹ SINGER REPORT at ¶ 71.

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opponents, can then capitalize on its promotional skills to create a successful product in the marketplace. In addition, the reduction in transaction costs achieved by internalizing decisions about upcoming matches increases the number of matches, thereby expanding output to the benefit of consumers and athletes.

93. Exclusive, multi-bout contracts are integral to Zuffa's ability to maintain its current output of events. In 2016, Zuffa put on 41 events with 10 to 13 bouts per event for a total of 493 bouts. Each one of those bouts features two athletes who have to be ready, willing, and able to compete at the time of the event and who have agreed to fight one another.¹⁵⁰ Moreover, Zuffa needs to create fair match-ups between athletes of comparable skills to be sanctioned by the athletic commission¹⁵¹ and to create compelling match-ups in order to get fans to purchase or watch the event. In order to successfully plan and promote these events, Zuffa needs to plan events months in advance.¹⁵²

94. Multi-bout contracts give Zuffa the ability to create match-ups from its roster of athletes without having to expend the significant transaction costs that would be required to individually renegotiate contracts before every bout. Exclusive contracts ensure that Zuffa has a steady roster of available athletes in order to plan this number of match-ups.¹⁵³ This roster of athletes is particularly important given that MMA is a high-risk sport in which injuries are common. One of Zuffa's matchmakers, Sean Shelby, estimated that at any given time between 10 and 40 percent of his roster is injured and unavailable to compete.¹⁵⁴ In the event of an injury, having a roster of athletes available from which to try and secure a replacement reduces the significant transaction costs and delays that would otherwise occur.

¹⁵⁰ Zuffa 30(b)(6) Deposition of Zuffa, LLC by Kirk D. Hendrick (November 29-30, 2016) [hereinafter HENDRICK CONTRACTS TR.] at 216.

¹⁵¹ HENDRICK CONTRACTS TR. at 44-45

¹⁵² EPSTEIN ACQUISITIONS TR. at 130-31.

¹⁵³ EPSTEIN ACQUISITIONS TR. at 131, 177-78; HENDRICK CONTRACTS TR. at 97-98.

¹⁵⁴ Deposition of Sean Shelby (April 12, 2017) at 120.

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95. Inherent to this solution to the transaction cost issue is that the marketplace will rely on matches between athletes contracted to the same promoter. Co-promoted matches, in which athletes from different MMA promoters compete against one another, are apparently non-existent.¹⁵⁵ There are also significant risks for the promoter whose job it is to sell the public on the idea that its athletes are the best. The promoter for the losing athlete in a cross-promoted event not only has lost that one bout but may also have diminished its ability to promote future events featuring its athletes because of the loss in the reputation and brand it had tried to create.¹⁵⁶ When discussing whether there can be procompetitive benefits to Zuffa's contracting practices, Dr. Singer suggests that a more competitive MMA industry could have matchups between athletes from different promoters.¹⁵⁷ Yet he provides no evidence of such cross-promotions between any promoters in the market, either currently or historically. The absence of cross-promotion, even among Zuffa's competitors, is strong evidence that cross-promotion is an inferior business model in MMA—it has failed the market test. The market reality is one of intra-promoter matches only.

96. Given this market outcome in which intra-promoter bouts are the universal business practice—not only by Zuffa, but also by competing promoters—there is a natural tendency for a leading promoter to attract a significant share of the top athletes. This follows from the complementarity of athlete talents in producing high-quality bouts, and the desire among athletes to fight against the best, statements which appear repeatedly in Dr. Singer's report.¹⁵⁸ Thus, the fact that Zuffa is larger than its rivals, has a larger share of top athletes, and is more successful at attracting audience share and revenue is not indicative of anticompetitive conduct, but rather follows naturally from the solution to the transaction cost problem that has been adopted by all competitors in the marketplace; such an outcome is procompetitive. The market structure induces aggressive competition between promoters to stage appealing events featuring matches among

¹⁵⁵ When discussing the possibility of cross-promoted fights, the only example that Dr. Singer cites is a boxing match between an MMA athlete and a boxer. (SINGER REPORT at ¶ 269.)

¹⁵⁶ Deposition of Scott Coker, (August 3, 2017) [hereinafter COKER TR.] at 84-87.

¹⁵⁷ SINGER REPORT at ¶ 269; see also SINGER REPORT at ¶¶ 283-4.

¹⁵⁸ SINGER REPORT at ¶¶ 20, 106, 136, 138, 164.

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their own contracted athletes. The most successful promoter will tend to attract the most talented athletes and produce the highest-valued events, at least until being supplanted by another promoter with a superior product or business acumen. In this regard, it is noteworthy that in Asia, which is the only other geographic market for MMA identified by Dr. Singer, he cites ONE Championship's claim that it has a 90 percent market share.¹⁵⁹

97. Moreover, when viewed from the perspective of the marketplace implementing an efficient solution to a transaction cost problem, the horizontal acquisitions that are an element of the alleged Challenged Conduct discussed by Dr. Singer are in fact procompetitive. When competing promoters each have highly ranked athletes, but transaction costs deter promoters from arranging cross-promoted matches, horizontal acquisitions enable top athletes to compete against each other—the complementary inputs (highly talented athletes) are brought within a single firm, which the evidence indicates is necessary for them to fight each other. This result benefits customers, who want to see (and are willing to pay to see) matches between top athletes. As discussed below, it also benefits athletes, for whom compensation increased following these acquisitions. In Section IX, I show that Zuffa's horizontal acquisitions did not increase its market power.

D. OTHER PROCOMPETITIVE BENEFITS OF ZUFFA'S CONTRACT PROVISIONS

1. Tolling Provisions

98. Zuffa's tolling provisions allow Zuffa to extend the length of an athlete's contract for periods of time in which the athlete is injured or otherwise unwilling or unable to compete. This provision ensures that Zuffa has sufficient time to promote the designated number of bouts under the contract. Without this provision, an athlete could get injured once and be unavailable for the remaining duration of the term of Zuffa's contract thus depriving Zuffa of the benefit of the multi-bout contract it bargained for.

99. Dr. Singer states that in the case of injury, unwillingness to compete, or retirement, Zuffa's agreements permitted them to extend contracts beyond the stated term for "many

¹⁵⁹ "About ONE," available at <https://onefc.com/about-one/> cited in SINGER REPORT at ¶ 122.

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additional months or years, or indefinitely.” He claims this allowed Zuffa to foreclose other promoters’ access to these athletes.¹⁶⁰

100. An analysis of the contract data compiled by Dr. Singer shows that extensions for injury or unwillingness to compete were neither common nor of indefinite length.¹⁶¹ As shown in Exhibit 9, extensions were implemented on 8 percent of contracts signed between 2010 and 2013 in this sample, and when an extension was implemented, its average length was only about 6 months. By way of comparison, Zuffa agreements typically state that extensions related to injury or unwillingness to compete will last a minimum of 6 months.¹⁶² In other words, extensions for injury or unwillingness to compete did not foreclose athletes for “years, or indefinitely”; such extensions were rare, and when they were implemented, they were on average the same length that athletes had contractually agreed to. In combination, these factors implied an average extension of slightly more than two weeks across all Zuffa contracts from 2010-2013. The procompetitive benefit of extensions for illness or unwillingness to complete was articulated by Scott Coker, former president and CEO of Strikeforce, who testified: “So if you’re out for six months and that stops us from honoring our contract with you, then the contract gets extended for six months until you’re ready to fight....we need that amount of time to be able to make sure that we have the proper time to promote and get our fights in under the term of the agreement.”¹⁶³

2. Right to Match

101. Zuffa’s contracts typically provide for a 12-month period following the term of its contracts in which it has the opportunity to match an offer from a competing MMA promoter to

¹⁶⁰ SINGER REPORT at ¶ 64.

¹⁶¹ Dr. Singer identifies 123 instances of tolling in his data, based on athlete-events that occur outside of contracts in his data (but limiting to events that occur before November 2015 when his contract sample ends). (SINGER REPORT at ¶ 297.) I limit the analysis to contracts with end dates in or before November 2014 to avoid truncation bias in the frequency and duration of tolling, leaving me with 101 out of the 123 instances identified by Dr. Singer. I base my calculations of frequency and duration of tolling extensions on these 101 tolling cases. Dr. Singer states “I have no reason to believe the sample of contracts provided were biased in any material way with regards to their terms relative to the true contract population.” (SINGER REPORT at ¶298). To the extent that contracts are missing, the estimated frequency of extensions could be overstated.

¹⁶² SINGER BACKUP; see also Exhibit 6.

¹⁶³ COKER TR. at 18, 230-231.

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sign one of its athletes. Right to match provisions are used in a variety of industries and protects a promoter's investments in the athletes it has developed. Consider an athlete who has reached the end of his contract with Zuffa. Assume that the athlete's talents and reputation are worth \$100,000 to Bellator, and Bellator offers that amount. Because some aspects of the athlete's Zuffa-created development are specific to Zuffa, the athlete is worth more to Zuffa—say \$150,000—than to Bellator. In negotiation with Zuffa, the athlete has an incentive to overstate the value of other, unmeasured aspects of his Bellator offer, forcing Zuffa to pay more and thus capturing some of the returns on Zuffa's investment. The right-to-match provision avoids this “hold-up” problem, allowing Zuffa to retain the athlete by matching the observable and verifiable elements of his Bellator offer.

102. Right to match provisions are commonly used by other MMA promoters. Bjorn Rebney, former chief executive officer of Bellator, described the competitive rationale in a 2012 article:

Rebney maintains his matching clause is just a side effect of the business. ‘You have a limited number of spots,’ Rebney explained. ‘So you’re ultimately going to look from a business perspective to protect yourself as a company, so that if you do give somebody that big opportunity, you ultimately are not going to be left out in a position where you’re just building someone up for someone else.’ That’s what the clause is designed for. It’s not designed to put the fighter in a worse position. It’s not created to give the promoter who had the contract with that fighter the opportunity to pay him less. All you’re saying is, ‘Look, give me the opportunity to pay you exactly what someone else will pay you, and if I decide to, I get the right to keep you. If I decide not to, in relatively short order, 14 days, I’ve got to release you.’¹⁶⁴

103. Dr. Singer states that “[a]ll PARs contain a right to match clause, which ‘grants Zuffa the right to match competing promoters’ offer[s] for [a] limited period of time [typically one year] after the expiration of a fighter’s agreement.’”¹⁶⁵ Dr. Singer implies that this clause will result in extended delays during which the athlete would not be paid: “Next, the Fighter would need to endure the year-long right to match period, during which the Fighter is required to bring any

¹⁶⁴ Shaun Al-Shatti, “Bellator CEO Bjorn Rebney Responds to Criticism from Dana White: ‘It’s Very, Very Hypocritical,’” *MMA Fighting* (September 24, 2012), available at <https://www.mmafighting.com/2012/9/24/3384434/bellator-bjorn-rebney-respond-dana-white-criticism-matching-rights-ufc-hollett-nam>.

¹⁶⁵ SINGER REPORT at ¶ 68.

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offer from another MMA promotion to Zuffa; if Zuffa agrees to match, the Fighter is then automatically bound to Zuffa under the terms of that matched contract. Only after these extended delays—during which Fighters would not be fighting, and thus not earning MMA income, and also risked sacrificing their prominence and marketability....”¹⁶⁶ Dr. Singer provides no evidence of such an effect. In fact, the right to match provision did not prevent an athlete from fighting or even from negotiating with another promoter. It only gave Zuffa the right to match another promoter’s offer during that 12-month period. The following examples illustrate this point.

104. Dr. Singer cites Gilbert Melendez as an athlete who was retained by Zuffa under the right-to-match provision. Mr. Melendez fought a bout for Zuffa in October 2013.¹⁶⁷ Dr. Singer says as of February 2014, Mr. Melendez’s contract was ending and he had come to an agreement with Bellator. Dr. Singer claims that in response, Zuffa exercised the right-to-match provision in order to retain Mr. Melendez.¹⁶⁸ Mr. Melendez signed a new contract with Zuffa that same month (February 2014).¹⁶⁹ In other words, only four months passed between the October 2013 bout that completed Mr. Melendez’s earlier contract obligations with Zuffa and the February 2014 signing of the new contract. Mr. Melendez’s experience is inconsistent with Dr. Singer’s statement that Zuffa’s right-to-match provision “impose[d] substantial costs and risks on Fighters.”¹⁷⁰ Furthermore, Mr. Melendez was able to use the right-to-match provision to obtain a more favorable contract from Zuffa.¹⁷¹

¹⁶⁶ SINGER REPORT at ¶ 84.

¹⁶⁷ SINGER BACKUP.

¹⁶⁸ SINGER REPORT at n. 246.

¹⁶⁹ SINGER BACKUP.

¹⁷⁰ SINGER REPORT at ¶ 84.

¹⁷¹ Fernando Quiles Jr., “Gilbert Melendez Explains How Free Agency Improved His UFC Contract,” *MMA News* (August 20, 2017) available at <http://www.mmanews.com/gilbert-melendez-explains-how-free-agency-improved-his-ufc-contract>.

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105. Similarly, in his report Dr. Singer cites Andrei Arlovski as an athlete who completed his contract with Zuffa.¹⁷² Under his last Zuffa contract before his 2008 departure from Zuffa, Mr. Arlovski fought five bouts between April 2006 and March 2008, with an average interval of less than 6 months between bouts. After his contract with Zuffa was completed, Mr. Arlovski's next bout was with the promoter Affliction. That bout took place in July 2008, 4.5 months after Mr. Arlovski's final bout with Zuffa.¹⁷³ Thus in the case of Mr. Arlovski, the interval between his last bout with Zuffa and his first bout with Affliction was comparable to the average interval between bouts while at Zuffa. Mr. Arlovski's experience is inconsistent with Dr. Singer's statement that Zuffa's right-to-match provision creates "extended delays."¹⁷⁴

106. In addition, as shown Exhibits 5 and 6, all of the Bellator PAR agreements include a right to match provision. Again, the presence of these provisions in Bellator contracts indicates that they are procompetitive.

3. Champion's Clause

107. The Champion's Clause grants Zuffa the limited opportunity to retain its current weight class-champions for a one-time, one-year extension or a certain number of bouts.¹⁷⁵ As discussed above, the champion extension plays an important role in the competitive process: it allows Zuffa to reap the returns on its most successful and valuable investments, and so it creates an incentive for Zuffa to invest in the development of an athlete. In order for an athlete to become a champion, the athlete must be developed and have opportunities to fight highly-ranked opponents. Zuffa creates these opportunities by contracting with other highly-ranked athletes and by staging events. When an athlete is able to leverage the opportunities developed by Zuffa to earn a championship title, it is efficient for Zuffa to benefit from the enhanced value and marketability of that athlete. If Zuffa believed that it would not benefit from its investment ex-post, it would not make the investment in the first place. This reasoning applies to any promoter,

¹⁷² SINGER REPORT at n. 220.

¹⁷³ SINGER BACKUP; ZFL-2705160; ZFL-2209239-40; ZFL-2705173; ZFL-2705373-74; ZFL-2640748.

¹⁷⁴ SINGER REPORT at ¶ 84.

¹⁷⁵ SINGER REPORT at ¶ 69; see also Exhibit 6.

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regardless of market power. Thus, note that 96 percent of the sample of Bellator PAR agreements also contain a champion's extension. (See Exhibits 5 and 6)

108. Strikeforce's Scott Coker testified as to the purpose of these kinds of extensions: "Q: So one of the reasons...that Strikeforce at least had the champion's clause was because Strikeforce had invested a lot of time and money into making the person a champion, and Strikeforce wanted an opportunity to extend the relationship for another year if that athlete was currently a champion? A: That's correct."¹⁷⁶

109. Furthermore, preserving a promoter's incentive to invest in athletes and events creates benefits for athletes and for the MMA audience: as Dr. Singer notes, athletes value the opportunity to develop their careers by fighting against highly-ranked opponents, and audiences are drawn to fights among highly-ranked opponents.¹⁷⁷ Dr. Singer ignores these obviously procompetitive effects.

4. Ancillary Rights Provision

110. The ancillary rights provision grants to Zuffa various forms of identity rights in connection with the UFC brand. The grant of identity rights is used in the sports and entertainment industries in order for companies to make efficient use of intellectual property.¹⁷⁸ As noted above, Zuffa broadcasts its events around the world. It also sells merchandise related to those events. Zuffa would be hampered with transaction costs if it were required to renegotiate with each athlete whose identity was used in an event each time Zuffa wanted to rebroadcast that event or show a clip from a previous event to promote an upcoming fight. The limited grant of identity rights which relates only to an athlete's identity as it relates to the UFC brand (for example in a bout or a press conference) allows Zuffa to effectively monetize its content in an efficient way, and protect that content from being used (for free) by others.

¹⁷⁶ COKER TR. at 18, 225-226.

¹⁷⁷ SINGER REPORT at ¶¶ 20, 107, 112, 119, 136, 138, 158, n. 362, 369, 577.

¹⁷⁸ For example, see NBA Collective Bargaining Agreement at Exhibit A, A-15-16, *available at* <http://nbpa.com/wp-content/uploads/2016/02/2017-NBA-NBPA-Collective-Bargaining-Agreement.pdf>.

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5. Retirement Clause

111. Zuffa's retirement clause allows Zuffa to extend, accelerate or fulfill its obligation to promote bouts if athletes retire before their agreements with Zuffa terminate. This clause protects Zuffa from an athlete attempting to breach its contractual agreement with Zuffa by "retiring" only to un-retire and sign with a competing promoter. It is not uncommon for contracting parties to draft provisions to protect their bargained-for exchanges.

112. The Retirement Clause has been in Zuffa's agreements since the time it purchased the UFC. (See Exhibit 4) As shown in Exhibits 5 and 6, all of the Bellator PAR agreements include retirement provisions. Again, the presence of these provisions in Bellator contracts indicates that they have procompetitive rationales, such as the one explained in the previous paragraph.

E. DR. SINGER IGNORES THE EFFECT OF FREE-RIDING AND OTHER PROCOMPETITIVE EFFICIENCIES

113. It is highly significant that competing promoters require very similar contract provisions with their athletes, as discussed above. This demonstrates that there is a pro-competitive rationale for these contract provisions. Dr. Singer appears at first to recognize that there is an efficiency rationale for multi-fight contracts, since he calls the alternative of one-fight-contracts a "straw-man."¹⁷⁹ But then he asserts that in a competitive market for athlete services it would be sufficient to simply offer competitive compensation to athletes.¹⁸⁰ This ignores the critical role of promotion in generating audience engagement and interest in future bouts for a successful athlete. The competitive value of a successful athlete hinges on promotion that generates consumer awareness of the athlete, contributing to what Dr. Singer refers to as an athlete's "human capital."¹⁸¹ As explained above, if athletes can freely switch to competing promoters that pay "competitive" compensation given the athletes' human capital—human capital that was largely developed by an initial promoter—then there is little incentive for the initial promoter to make the investments that contribute to that human capital in the first place. Reducing promotional investments would make athletes as well as the promoter and consumers worse off.

¹⁷⁹ SINGER REPORT at ¶ 282.

¹⁸⁰ SINGER REPORT at ¶ 283.

¹⁸¹ SINGER REPORT at ¶ 283.

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By ignoring the potential for free riding, Dr. Singer fails to understand the role of contractual provisions used by Zuffa and other promoters to ensure efficient provision of relational-specific promotional investments.¹⁸²

114. Dr. Singer also dismisses the claim that the PAR contractual provisions were instrumental to the success of Zuffa and other MMA promoters in the growth of MMA as a sport.¹⁸³ First, he argues that the contractual restrictions, if anticompetitive, cannot be justified by helping UFC grow. However, this ignores that the contract restrictions are instrumental in overcoming market failures that inhibit effective promotion and growth of MMA as a whole. Moreover, he misses the significance of the fact that other promoters use similar contractual restrictions, which he says simply makes the market more restrictive than it needs to be.¹⁸⁴ If there were no procompetitive aspect to having exclusive contracts of the duration used by both UFC and other MMA promoters, then competing promoters could make a more attractive offer to athletes by offering shorter and less restrictive contracts, and use that as a competitive advantage relative to UFC. The fact that other promoters use similarly restrictive contracts indicates that the benefits to these contracts in overcoming market failures outweighs any benefit to athletes from having less restrictive terms. Finally, Dr. Singer dismisses the ability of rival promoters to compete effectively against UFC in both the downstream market for consumers and the upstream market for athletes.¹⁸⁵ But, as discussed throughout my report, Dr. Singer's dismissal of rival MMA promoters is contrary to the evidence. For example, in discussing Bellator, the president of Spike TV (which airs Bellator matches) has said that "'We're right on an even footing [with UFC]....We're certainly not the minor leagues. Obviously, they are the market leaders right now, but I think Bellator is stepping up in a big way.'", and Bellator's

¹⁸² Dr. Singer alleges that the challenged provisions of PAR contracts encourage shelving of athletes or scheduling less attractive matches toward the end of the contract period to incentivize athletes to renew or extend their contracts. (SINGER REPORT at ¶ 76-80) However, the incentive to engage in such tactics would be, if anything, stronger with shorter contracts and without the challenged provisions, since athletes would reach the end of the contractual term more frequently.

¹⁸³ SINGER REPORT at ¶¶ 261-4.

¹⁸⁴ SINGER REPORT at ¶ 263.

¹⁸⁵ SINGER REPORT at ¶ 262.

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president has said, “‘There’s not going to be a fighter on the planet we can’t afford and have access to.’”¹⁸⁶

F. ZUFFA’S CONTRACTS DO NOT IMPAIR ATHLETES FROM GOING TO OTHER PROMOTERS

1. Contract Duration

115. Dr. Singer states that the duration of Zuffa’s exclusivity provisions was effectively perpetual for athletes who Zuffa wished to retain, which allowed Zuffa to foreclose other promoters’ access to these athletes.¹⁸⁷ To address this argument, it is important to begin by noting that Zuffa’s contracts are not, in fact, perpetual. The terms of various elements of the contracts are stated in the contracts, as are the conditions under which extensions are permitted. In fact, Dr. Singer effectively acknowledges the limited duration of Zuffa’s contracts in noting that among Zuffa agreements signed during the Class Period through 2015, the median duration (which reflects the initial term, the exclusive negotiation period, the right to match period, and any option period) is 35 months.¹⁸⁸

116. While Dr. Singer effectively acknowledges that the duration of Zuffa contracts is not perpetual, Dr. Singer’s estimate of the median duration is overstated. Dr. Singer’s duration analysis measures the duration of a contract using the maximum number of months specified in the contract. In particular, Dr. Singer includes the maximum right-to-match period (typically 12 months) in his measure of contract duration. However, the right-to-match provision does not prevent an athlete from fighting with a competitor for a full 12 months. Once an athlete brings a competing offer to Zuffa, Zuffa has to determine whether to match the offer or allow the athlete to join the competitor. Zuffa typically has 15 days in which to make this decision.¹⁸⁹ If the

¹⁸⁶ Marc Raimondi, “Spike TV president: Bellator MMA 'on an even footing' with the UFC,” *MMA Fighting* (February 8, 2015), available at <https://www.mmafighting.com/2015/2/8/7926603/spike-tv-president-bellator-mma-on-an-even-footing-with-the-ufc>.

¹⁸⁷ SINGER REPORT at ¶¶ 88-91.

¹⁸⁸ SINGER REPORT at ¶¶ 88-91. Exhibit 10 shows a median duration of 34 months for Zuffa contracts. Dr. Singer estimates a median duration of 35 months for Zuffa contracts. This slight difference is due to my use of a different time frame (2010-2015 versus December 16, 2010 to 2015) and to the fact that I drop 25 contracts to be consistent with analyses Dr. Singer presents elsewhere in his report.

¹⁸⁹ Exhibit 6; ZFL0500960; ZFL0489704-705.

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average athlete were able to bring a competing offer to Zuffa within the first month of the right-to-match period, their effective contract duration would drop to approximately 26 months.¹⁹⁰ I calculate the 25th percentile career length for athletes that ever had a UFC bout to be 6.7 years, and the median career length was approximately 8.9 years (with some athletes having careers as long as 22 years).¹⁹¹ Thus, a 26-month UFC contract would span no more than one-third of an athlete's career for 75 percent of UFC athletes, and no more than one-quarter of their career for half of UFC athletes.

117. The procompetitive rationale for contracts of this duration is illustrated by the fact that competing promoters that could not plausibly exercise monopsony power find value in multi-bout exclusive agreements. Measuring duration as Dr. Singer does (*i.e.*, according to the maximum number of months specified in the contract), the median duration of the Bellator PAR agreements is actually longer than the Zuffa PARs: in the sample of Bellator agreements from 2010 to June 2017, the median duration is 45 months, as shown in Exhibit 10. The fact that the median duration is substantially longer for an entity that is not alleged to have monopsony power indicates that contract durations of this length, and with the provisions shown in Exhibit 5, have procompetitive effects. As noted above, it is likely that promoters like Zuffa and Bellator find that agreements of this duration allow them to reduce transaction costs and reap the return on the investments they make in their athletes, which in turn enhances incentives for such investments to occur. Carlos Silva, an executive at a rival MMA promoter, confirmed this point in his deposition, testifying that the benefits of multi-bout, exclusive agreements included allowing the promoter to reap the return on its investment, allowing the promoter to promote an athlete over time, and helping with scheduling (because if an athlete is injured, others can fill in for him).¹⁹²

¹⁹⁰ SINGER REPORT at ¶ 89, Table 1. Table 1 of Dr. Singer's report shows that the average duration of the initial term, option period and exclusive negotiation period (*i.e.* omitting the right-to-match period) is approximately 25 months. Adding 1 month for the resolution of the right-to-match period brings the total to 26 months. A similar result applies to the median.

¹⁹¹ I calculate this using Sherdog data from Dr. Singer's Backup, using all athletes with at least one UFC bout between 2001 and 2015. Career length is measured as the time between their first bout and their last bout recorded in Sherdog, for any promoter. I drop athletes with bouts in the last year of the Sherdog data (*i.e.* after 6/18/2016) to avoid including athletes with on-going careers.

¹⁹² C. SILVA TR. at 13, 196-197.

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2. Staggered Contracts Mean That Athletes Are Constantly Becoming Available to Competing Promoters

118. Dr. Singer states that Zuffa impaired competing MMA promoters' access to athletes as a result of Zuffa's staggered contracts that ended at different dates.¹⁹³ Putting aside that non-staggered contracts are simply implausible in a world where promoters are continuously searching for and signing athletes, staggered contracts also mean that competing promoters have a steady stream of athletes becoming available to them at all times. Moreover, Dr. Singer does not explain how small variations in the completion date of contracts could impact promoters. Because Zuffa's contracts typically terminate upon completion of a designated number of bouts, at the end of each event, and following the short – typically 3-month – exclusive negotiating period¹⁹⁴, promoters may have access to a new stream of free agent athletes. Since Zuffa hosts approximately 35-45 events per year,¹⁹⁵ competing promoters have a constant supply of athletes coming available to them some of whom may reach free agency only weeks apart. Furthermore, it is unclear why promoters need “a critical mass of top-level Fighters” at one time, and it is noteworthy that Dr. Singer does not define what “critical mass” means or would be sufficient to support his view of non-foreclosure.¹⁹⁶ It is unclear why having access to a flow of top-athletes consistently throughout the year would hamper a competing promoter who was actively looking to sign athletes.

G. DR. SINGER'S CLAIM THAT ZUFFA EXPLOITED CONTRACT TERMS TO RENEW ATHLETES' CONTRACTS ON TERMS FAVORABLE TO ZUFFA IS NOT SUPPORTED BY THE EVIDENCE

119. Dr. Singer states that “Zuffa [e]xploited the [e]xclusionary [t]erms to [e]xtend and [r]enew [f]ighter [c]ontracts” which “created powerful incentives for Fighters to renew their contracts before the prior contracts expired, on terms favorable to Zuffa.”¹⁹⁷

¹⁹³ SINGER REPORT at ¶ 154.

¹⁹⁴ SINGER REPORT at ¶ 84.

¹⁹⁵ Exhibit 30.

¹⁹⁶ SINGER REPORT at ¶ 154.

¹⁹⁷ SINGER REPORT at ¶¶ 76, 176.

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120. Dr. Singer states that such incentives included “(1) impos[ing] (or credibly threaten[ing] to impose) delays between bouts, particularly before the final bout of a Fighter’s contract, during which Fighters—who get paid only when they fight—could not earn MMA income from any source; [and] (2) pair[ing] (or credibly threaten[ing] to pair) Fighters against suboptimal opponents or on unfavorable positions on a Fight Card,” in addition to the champions’ extension, exclusive negotiation period, and right to match period mentioned above.¹⁹⁸ Dr. Singer also states “Zuffa could also ensure that a Fighter refusing to sign a new contract made less money at his final bout” than he would have if he had accepted a new deal.¹⁹⁹

121. Apart from anecdotes, Dr. Singer does not provide evidence to support these statements. To test Dr. Singer’s statements, I use the contract data that Dr. Singer compiled to identify contracts that were re-signed prior to completing the original contract. I consider the athlete to have re-signed early if they signed a new contract prior to completing all bouts on their prior contracts. For example, if an athlete has a four-bout contract and entered into a new contract after the third bout was completed, I consider the athlete to be an early re-sign.^{200, 201}

122. Using these data, I test whether athletes who renewed their contracts before the prior contract expired do so on terms favorable to Zuffa. The results are shown in Exhibit 11, which shows the average to-show compensation for three consecutive bouts for Zuffa athletes that re-signed with Zuffa before the end of their contract, as defined in the previous paragraph. For

¹⁹⁸ SINGER REPORT at ¶¶ 76, 80.

¹⁹⁹ SINGER REPORT at ¶ 80, n. 221.

²⁰⁰ My analysis is based on Dr. Singer’s identification of early re-signed contracts. Dr. Singer accounts for early re-signed contracts in his data by assigning athlete-events to the most recently signed PAR agreement for an athlete, even where an old contract is still active. To the extent that Dr. Singer’s contract data is incomplete, some contracts could have been misclassified as not being “early re-signs.” However, I have reduced the likelihood of this occurring by limiting my definition of “early re-signs” athletes to those who re-signed with Zuffa within 12 months after their last bout on the prior contract was completed. Also, Dr. Singer states “I have no reason to believe the sample of contracts provided were biased in any material way with regards to their terms relative to the true contract population.” (SINGER REPORT at ¶ 298)

²⁰¹ In the sample I use for this exercise, I only include cases where the specified number of bouts on prior contracts is between 3 and 6 (88 percent of all contracts) and where the athlete completed all but one of the specified bouts. As discussed above, I also limit to cases where the early re-signed contract was signed no more than 12 months after the last completed bout on the prior contract. To avoid including contracts that may have been completed based on the time elapsing on the contract (even if not all bouts were completed), I limit to cases where the new contract was signed before the expected end date of the prior contract (unadjusted for any extensions).

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example, if the initial contract called for four bouts, the row labelled “second to last bout fought on prior contract” would refer to the second bout in the original contract, and the row labelled “last bout fought on prior contract” would refer to the third bout in the original contract. For these “early signers” the table shows that compensation increased at a greater rate between the last bout fought on the prior contract and the first bout on the new contract than it did between the prior “within-contract” bouts. As shown in Exhibit 11, in the data for 2010 to 2015, the mean to-show compensation increased by \$1,388 (equal to \$22,122 minus \$20,734) between the last two bouts completed on the original contract, or by 6.7 percent. From the final bout on the old contract to the first bout on the new contract mean compensation grew by \$4,699 (equal to \$26,820 minus \$22,122), or 21.2 percent.²⁰² This pattern does not fit Plaintiffs’ theory that athletes re-signed early because they were disadvantaged in negotiations with Zuffa—compensation grew more rapidly in moving to their new contracts than it did in their prior contracts. The pattern is consistent with the fact that Zuffa faced increased competition in signing athletes to new contracts, so compensation increased.

123. Dr. Singer claims that Zuffa’s investments were focused more on athletes who intended to stay and less on athletes who intended to leave. If so, this merely illustrates the importance of the kinds of contractual provisions found in Zuffa and Bellator’s contracts. If a promoter believes that an athlete is likely to depart after the next bout, the promoter’s incentive to invest in that athlete’s development and notoriety declines: not only is the promoter unlikely to reap the return on further investment, but also one of their competitors is likely to benefit via free riding. The provisions in the Zuffa and Bellator contracts address this issue by providing a degree of assurance that a promoter will reap the rewards of its investments, thus creating an incentive for a promoter to invest in its athletes.

²⁰² I adjust to-show compensation levels for inflation using the CPI-U index. Values are expressed in 2016 dollars.

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VI. DR. SINGER DOES NOT UNDERSTAND BASIC LABOR ECONOMICS OR THE OPERATION OF LABOR MARKETS: ECONOMIC MODELS DO NOT PREDICT THAT A WORKER SHOULD BE PAID A CONSTANT FRACTION OF A FIRM'S REVENUE

A. THE CORRECT WAY TO MEASURE MMA ATHLETE'S COMPENSATION IS THE ATHLETE'S MARGINAL REVENUE PRODUCT

124. In Section III.D.1 of his report, Dr. Singer presents results from regressions relating a measure of MMA athletes' compensation to his measure of purported foreclosure. The measure of compensation that Dr. Singer uses is an athlete's pay *as a share of event revenue*. As explained by Dr. Singer, "the dependent variable to be explained is the share of event revenue received by a given Fighter at a given event."²⁰³

125. Though Plaintiffs' theory of harm is tied to Zuffa's alleged monopsony power—that is, Plaintiffs' allege that Zuffa was able to suppress wages in the market for its labor input, MMA athletes—it is useful to draw a parallel to the usual analysis of monopolistic harm in an output market. In the case of monopoly, anticompetitive harm to consumers occurs because the price of a good, measured in dollars per unit, is higher than it would be in the absence of monopoly power. In the case of labor market monopsony, the relevant "price" is compensation paid to affected workers—their wage or salary—also measured in dollars per unit of work. The question is: Was MMA athletes' pay artificially suppressed? **But an athlete's pay as a share of event revenue is not the same thing as an athlete's pay.** An athlete's pay is the actual amount of compensation the athlete takes home. An athlete's pay as a share of revenue is the percentage calculated by dividing the athlete's actual pay by the total event revenue.

126. To state the obvious, an athlete's pay as a share of event revenue can easily decline even if pay, measured as it should be in dollars per athlete, is increasing. This is especially likely if Zuffa's promotional investments drive greater interest in its MMA events, so that Zuffa's revenues at each event increase because of greater attendance or viewership. Dr. Singer's models ignore this tenet of labor economics and estimate the relationship between MMA athletes' pay as a share of revenue and the fraction of MMA athletes that are allegedly foreclosed by Zuffa. In so doing, his models are completely silent on the true metric of anticompetitive harm, which would

²⁰³ SINGER REPORT at ¶ 180.

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be a reduction in the dollar compensation of MMA athletes. As a result, his putative evidence of anticompetitive “impact” is nothing of the kind—his results are simply useless for analyzing the issues in this case.

127. While Dr. Singer argues that it is correct to measure worker compensation as a share of revenue, this claim demonstrates a misunderstanding of basic labor economics. The standard economic models of competitive labor markets explain the determination of workers’ wages, measured in dollars per worker. They do not explain the determination of a worker’s pay as a percentage of the employer’s revenue, which is not a measure of anything useful or informative. Furthermore, as I demonstrate below, the relationship between a worker’s pay as a share of revenue and Dr. Singer’s measure of “foreclosure” (which, in reality, does not measure foreclosure at all) is not informative of whether Zuffa has exercised monopsony power in the labor market. Dr. Singer’s estimated measure of anticompetitive impact would occur if Zuffa had no market power in the labor market, *i.e.*, if the labor market were perfectly competitive, and Zuffa were better than its competitors at promoting fights and developing MMA athletes, which the evidence clearly indicates.

128. To support his claim that it is appropriate to measure worker compensation as a share of revenue, Dr. Singer refers to standard economic models of labor markets.²⁰⁴ But Dr. Singer’s description of what these standard economic models say is simply wrong. These models are taught in undergraduate and graduate courses in labor economics, and in undergraduate and graduate level courses in microeconomics.

129. In what follows, I explain why Dr. Singer’s approach is not supported by standard economic models. In Section VII, I demonstrate this point empirically: there is no relationship between Dr. Singer’s measure of monopsony power and the level of compensation that Zuffa pays its athletes, which is the correct measure of pay.

²⁰⁴ SINGER REPORT at n. 454.

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B. STANDARD ECONOMIC MODELS OF COMPETITIVE LABOR MARKETS MAKE PREDICTIONS ABOUT THE LEVEL OF WORKER PAY, NOT ABOUT WORKER PAY AS A SHARE OF REVENUE

130. In a competitive labor market, the wage (price) of a particular type of labor is determined by supply and demand. Competition for labor's services causes the wage to equal the value of a worker's marginal product—what he or she can add to the value of output in competing uses. The wage is then in the form of a rental price for labor's services, measured in dollars per unit of time or dollars per unit of a service performed. Thus, my salary at the University of Chicago is measured as a certain number of dollars per year. To retain professors of a given quality, the University of Chicago must pay competitive salaries, which is to say that Chicago's faculty are paid nearly the same as what other, comparable, institutions would pay us. The important point here is that labor market competition determines the level of our pay, measured in dollars per year. This operation of the labor market has nothing to say about my salary as a percentage of the University's revenue. If, for some reason, the demand for a University of Chicago education increased sharply relative to other schools, allowing the University to charge much higher tuition, my salary would still be determined by what it costs to attract and retain faculty of comparable skill. My salary would be little changed, if at all, but my salary as a share of the University's revenue would decline. Such a decline says nothing about the exercise of monopsony power—only the level of pay, measured in dollars, would be affected by the exercise of monopsony power.

131. This model of wage determination is ubiquitous in both undergraduate and graduate courses in labor economics, as well as in undergraduate and graduate courses in microeconomic theory. Treatments of these models appear in virtually any undergraduate-level labor economics textbook, and in most graduate-level microeconomics textbooks.²⁰⁵ I have taught these models at

²⁰⁵ George Borjas, *Labor Economics* (6th Edition, 2012) at Chapter 3 and pp. 550-551; Ronald G. Ehrenberg and Robert S. Smith, *Modern Labor Economics: Theory and Public Policy* (9th Edition, 2006) at Chapter 3 and p. 65 ("Clearly, equation (3.5) [referring to the equation that states the marginal revenue product of labor is equal to the wage] is stated in terms of some *monetary* unit (dollars, for example)."); Michael L. Katz and Harvey S. Rosen, *Microeconomics* (3rd Edition, 1998) at p. 215 ("A firm that is a price taker in both the factor market and the output market maximizes its profit by hiring a factor up to the point at which marginal physical product times the output price is equal to the input price, or $MPP \times p = w$."); Hal R. Varian, *Microeconomic Analysis* (3rd Edition, 1992) at pp. 25-28; Andreu Mas-Collel, Michael D. Whinston, and Jerry R. Green, *Microeconomic Theory* (1995) at pp. 135-137.

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the graduate level in the University of Chicago for decades. In all cases, the wage determined by the operation of supply and demand in the labor market is expressed as a dollar amount; the wage is not expressed as a share of revenue.

132. Dr. Singer’s description of these economic models is inconsistent with what these models say, and demonstrates a misunderstanding of basic economics. In his report, Dr. Singer states: “Using Strikeforce pre-acquisition Fighter Shares as a benchmark is consistent with elementary economics, which shows that competitive firms pay labor *a share of revenue* commensurate with labor’s productivity, based on the marginal product of labor.”²⁰⁶ (Emphasis added.) Dr. Singer provides no support for this claim that competitive firms pay labor “a share of revenue,” and he cannot do so because such support does not exist anywhere in the academic literature. “Elementary economics” does not show what Dr. Singer says it does. The elementary economics models to which Dr. Singer refers show what the *level* of wages is, not what *share* of the firm’s revenue is paid to a worker.

C. DR. SINGER IS INCORRECT WHEN HE CLAIMS SHARE OF REVENUE IS EQUIVALENT TO THE ATHLETES’ MARGINAL REVENUE PRODUCT

133. Because Dr. Singer insists on analyzing an MMA athlete’s pay as a fraction of Zuffa’s event revenue, it is worth investigating what, if anything, economics says about this percentage. Consider a firm that increases its investment in advertising. If the advertising is effective it will generate greater sales and more revenue. This greater demand might induce the firm to hire more workers, but in a competitive labor market the firm will be able to expand employment without paying a higher wage. Then the wage as a share of the firm’s revenue declines, but this has nothing to do with monopsony power—by construction of this example, there is no monopsony power and wages do not decline.

134. Like the advertising in this example, much of Zuffa’s revenue is generated by Zuffa’s investments—skillfully promoting events and athletes, scheduling fights involving compelling matchups, advertising, pushing for regulatory change that allows for the spread of MMA events, and so on. Dr. Singer admits as much in his report.²⁰⁷ Elementary economics predicts that

²⁰⁶ SINGER REPORT at n. 454.

²⁰⁷ SINGER REPORT at ¶ 284.

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Zuffa's revenue should therefore be paid to compensate the inputs necessary to make those investments. Competition implies that an athlete's pay as a share of event revenue should decline as Zuffa makes successful revenue-enhancing investments. The better Zuffa is at "producing high-quality events" and "effectively promot(ing)" them, the more Zuffa's revenue increases, the more revenue will go to those responsible for producing and promoting the events, and the smaller will be the compensation of an athlete as a share of event revenue. This occurs even if the level of athletes' compensation rises.

135. This brings us to Dr. Singer's regression model, which purports to demonstrate anticompetitive impact on MMA athlete's compensation due to "foreclosure." Specifically, the regression estimates Dr. Singer reports in Section III.D.1 of his report show a negative relationship between his measure of purported foreclosure—the share of athletes under contract with Zuffa—and an athlete's pay as a *share* of event revenue. In other words, he finds that as Zuffa's share of (a defined group of) MMA athletes under contract increased, a typical athlete's pay as a fraction of event revenue declined. Dr. Singer interprets this negative relationship as evidence of anticompetitive impact—*i.e.* that Zuffa exercised monopsony power in the market for MMA athletes, reducing their pay below competitive levels. Dr. Singer also bases his calculations of harm to MMA athletes on this negative relationship.

136. But the negative correlation Dr. Singer documents between his foreclosure share and an athlete's pay as a share of event revenue is not informative of whether Zuffa has exercised monopsony power in the Input Markets. This is because the negative correlation would exist if, on the one hand, Zuffa succeeded in increasing event revenue through wholly procompetitive means without the exercise of monopsony power, or, on the other hand, Zuffa was exercising monopsony power and reducing pay to its athletes. In short, Dr. Singer's proposed test cannot distinguish between a negative correlation resulting from Zuffa's exercise of monopsony power and a negative correlation resulting from competition on the merits.

137. To see this, let $y(i, t)$ denote the pay of athlete i as a share of event revenue at date t . Let $Z(t)$ denote the share of MMA athletes under contract with Zuffa at date t . The theoretical foundation for Dr. Singer's regression is his assertion that a negative relationship between $y(i, t)$ and $Z(t)$ demonstrates the exercise of monopsony power. As a matter of basic economics, this

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assertion is simply false. A negative relationship between $y(i, t)$ and $Z(t)$ is an implication of successful competition on the merits by Zuffa, even if it is impossible for Zuffa to obtain or exercise monopsony (or monopoly) power. This means that Dr. Singer's regression evidence is meaningless for the purposes demonstrating or measuring anticompetitive impact or harm—he would “find” his negative relationship even if such harm could not (and did not) occur.

138. Zuffa argues that its success is the result of competing on the merits, producing a superior product and attracting the best talent. Along these lines, assume that Zuffa became progressively better than its competition at promoting fights, advertising, and developing athletes' skills. If the labor market were perfectly competitive, economic theory would predict that athlete compensation would remain constant, Zuffa's share of all MMA athletes would rise, and Zuffa's revenue per event would increase. Therefore, athlete compensation as a share of event revenue, $y(i, t)$, would decrease while the percentage of all MMA athletes that are under contract to Zuffa, $Z(t)$, would rise. This is precisely what Dr. Singer's regression finds, yet it has nothing to do with monopsony power—in fact it is the outcome of Zuffa's procompetitive success. This would happen even though the market was perfectly competitive, and even if no promoter has market power in the Input or Output Markets.²⁰⁸

D. THE CORRECT WAY TO EVALUATE COMPENSATION IS BASED ON THE DOLLAR AMOUNT MMA ATHLETES ARE PAID

139. Plaintiffs claim that the Challenged Conduct reduced the compensation of Zuffa's MMA athletes by reducing labor market competition. They were “underpaid,” according to Plaintiffs, in exactly the way that consumers would be “overcharged” in a standard monopolization case. The question is whether the *level* of athlete's compensation—measured in dollars per athlete—was affected by the Challenged Conduct. Yet Dr. Singer's regression results and associated calculations of “harm” reveal nothing about the level of athlete compensation: it could be rising or falling as Zuffa grew.²⁰⁹ Instead, at most, all that Dr. Singer has shown is that as Zuffa's business grew relative to its competition, its revenues grew at a faster rate than the earnings of MMA athletes. This reveals nothing about the Challenged Conduct or its effects. He does not

²⁰⁸ These implications are shown formally in an economic model presented in Appendix A.

²⁰⁹ As I explain in Section VIII, the level of athlete compensation measured in dollars per athlete went up consistently through the class period.

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show that athletes' compensation was reduced, or that MMA athletes were harmed in any way. In fact, if the growth of Zuffa's business caused athletes' compensation to rise, but more slowly than Zuffa's revenues—which is exactly what we would expect if Zuffa's conduct was procompetitive—then Dr. Singer's "share" regression will calculate "harm" even though Zuffa's procompetitive conduct benefitted MMA athletes. This makes clear that the proper assessment of harm or benefit to athletes is whether the level of compensation they received was affected by the Challenged Conduct. Dr. Singer's "share" analysis provides no evidence or guidance relevant to this question.

140. Remarkably, Dr. Singer himself acknowledges this logic in his report. He criticizes Professor Fort (who provided an expert declaration on behalf of Zuffa in connection with the FTC's investigation of the Strikeforce acquisition) for analyzing Zuffa's profit margins measured as a percentage of revenues rather than Zuffa's dollar profits. Dr. Singer writes: "This ignores elementary economics (and common sense), which teaches that firms seek to maximize dollar profit, not profit as a share of revenue."²¹⁰ Here Dr. Singer refers to firms' maximization of profits and argues that firms care about the dollar value of profits, not profits as a share of the firm's revenue. In the same way that this is true for firms, so it is true for workers: workers care about the dollar value of their compensation, not compensation as a share of their employer's revenue. Simply replace the word "firms" with "athletes" and the word "profit" with "pay" and Dr. Singer's statement reads: "This ignores elementary economics (and common sense), which teaches that [athletes] seek to maximize dollar [pay], not [pay] as a share of revenue."

141. As I explain in more detail in the next section, when I run Dr. Singer's regressions changing the outcome of interest from athletes' pay as a share of event revenue to simply athletes' pay—the economically correct metric—I find no significant negative relationship between Dr. Singer's measure of "foreclosure" and athletes' compensation. That is, the regressions provide no evidence that Zuffa's conduct reduced the pay of MMA athletes.

²¹⁰ SINGER REPORT at ¶ 279.

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VII. DR. SINGER'S IMPACT REGRESSION IS FLAWED

142. I explained above why Dr. Singer's regression model is not informative about either "foreclosure" or whether Zuffa has exercised monopsony power to suppress the compensation of MMA athletes. I explained that pay as a share of event revenue is a useless measure for this purpose. Rather, economics indicates that the relevant metric to measure compensation is the level of pay (*i.e.*, what employers actually pay their employees), measured in dollars. Put simply, when assessing the alleged exercise of monopsony power, the relevant question is whether Zuffa paid its athletes less as Zuffa's alleged monopsony power increased. Below, when I modify Dr. Singer's regression model to examine athletes' compensation levels instead of their compensation as a share of Zuffa revenues (*i.e.*, I modify the regression model to be consistent with how labor economists actually think about monopsony power), I find no evidence that athletes' compensation is negatively correlated with Dr. Singer's measure of labor market foreclosure. This result is also highly relevant to the issue of class certification and damages since it implies that there is no antitrust impact and so *no* common impact: Zuffa athletes did not suffer damages because of the Challenged Conduct.²¹¹

143. Moreover, I demonstrate that aside from using an incorrect measure of athlete compensation, Dr. Singer has made various other errors in how he specifies and implements his regression model. First, I explain why it is inappropriate for Dr. Singer to include in his regression model Strikeforce bouts that occurred before Zuffa acquired Strikeforce. Second, I explain why there is a *mechanical* negative relationship between Dr. Singer's foreclosure shares and the share of Zuffa revenues that are paid to athletes. This mechanical negative correlation, rather than being evidence of Zuffa's monopsony power, occurs because Dr. Singer included

²¹¹ Dr. Singer's regression model is designed to measure the average effect of foreclosure on Zuffa athletes' compensation. If this average effect is positive or statistically indistinguishable from zero, then the regression model implies that no athletes' compensation decreased when Dr. Singer's measure of foreclosure increased. See ABA Section of Antitrust Law, *Proving Antitrust Damages* (2nd Edition, 2010) at p. 131. On the measurement of antitrust impact, the ABA writes: "Nevertheless, (1) a properly specified econometric model showing that an explanatory variable has a statistically significant partial effect on the dependent variable, holding constant other factors, and (2) a sound economic theory explaining why one would expect the explanatory variable to have a causal effect, together provide evidence consistent with the existence of a causal relationship and an estimate of the magnitude of the effect." In other words, since Dr. Singer's regression does generate a statistically significant negative correlation between athletes' compensation and foreclosure, it does not imply any Zuffa athletes suffered damages.

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Zuffa's event revenue on both the left and right hand side of the regression (as the denominator of the dependent variable and as the weight that increases the key explanatory variable).

144. When I correct either of the errors Dr. Singer made in implementing his regression model, either individually or in combination, his model shows that members of the proposed class were not damaged (even measuring compensation as a fraction of event revenue) by Zuffa's conduct. Thus, Dr. Singer's model, even taken on its own incorrect terms, shows there is not a negative correlation between Dr. Singer's foreclosure shares and the share of event revenues that Zuffa pays its athletes.

145. Below, I discuss each of these flaws in Dr. Singer's regression model in detail. To facilitate this discussion, Exhibit 12 summarizes each of the flaws in Dr. Singer's regression model, the steps I have taken to address these flaws, and how the conclusions drawn from Dr. Singer's regression model with respect to class certification change as a result.

A. DR. SINGER'S REGRESSION MODEL IS NOT INFORMATIVE ABOUT ZUFFA'S MONOPSONY POWER BECAUSE IT USES THE WRONG DEPENDENT VARIABLE

146. In Dr. Singer's regression model, the dependent variable is the fraction of revenues Zuffa collects at an event that is paid to an athlete for participating in a bout. For the reasons I described earlier, I correct Dr. Singer's regression model so that it measures the relationship between athletes' actual compensation levels and Dr. Singer's measures of foreclosure. To implement this correction, I make two changes to Dr. Singer's regression model. First, I replace Dr. Singer's incorrect dependent variable with the natural logarithm of an athlete's compensation from an event, measured in dollars. Using the logarithm of compensation is standard practice in estimating compensation regressions.²¹² Then the estimated effect of a variable such as Dr. Singer's measure of foreclosure can be interpreted as the percentage change in athlete compensation due to a unit change in the variable in question. Second, I test the effect of adding

²¹² Sherwin Rosen, "Distinguished Fellow: Mincering Labor Economics," *The Journal of Economic Perspectives*, vol. 6, no. 2 (1992). Compensation regressions of this type are often referred to as Mincer regressions. Using the log of athletes' compensation makes the compensation regression informative about changes in athletes' compensation in percentage terms. For example, the regression might imply that a ten percentage point increase in Zuffa's foreclosure share causes a one percent increase in athletes' compensation. Dr. Singer uses the same approach in two of his analyses that address compensation structure. SINGER REPORT at § IV.B.2.

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Zuffa's event revenues to the regression model as an additional explanatory variable.²¹³ The results when I make these changes are reported in Exhibit 13. In columns 1-3, I use logged compensation as the dependent variable and in columns 4-6 I also include event revenues in the regression. I estimate the regression models using Dr. Singer's measures of foreclosure in each of his Tracked, Ranked, and Headliner input markets.²¹⁴

147. After I correct Dr. Singer's regression model, the negative correlation between compensation and foreclosure, which Dr. Singer claims is evidence of Zuffa's monopsony power, disappears. Therefore, Dr. Singer's model does not provide any evidence that members of the class were harmed. None of the estimated coefficients on "foreclosure" in columns 1-3 is statistically significant, and two of the three estimates are positive—which is the opposite of what Plaintiff's foreclosure theory would predict. Although there is a negative correlation between athletes' compensation and Dr. Singer's Ranked measure of foreclosure, the coefficient (-.03957) is insignificant and does not imply meaningful impact. If Zuffa's foreclosure share of the ranked market decreased by fifty percentage points (e.g., 70 percent to 20 percent), athletes' compensation levels would increase by less than two percent.

148. In each of columns 4-6, after controlling for promoters' event revenues, I again find that the estimated impact of foreclosure is statistically insignificant by any conventional standard. Note, however, that event revenue has a statistically significant *positive* effect on athlete pay. For example, in column 6 the coefficient of 0.07998 indicates that a 20 percent (0.20) increase in event revenue raises athlete pay by about 0.20×0.07998 , or 1.6 percent. This effect is highly statistically significant—we can be confident that the effect is not zero or negative—and it indicates that greater success by Zuffa raises athlete pay.²¹⁵

²¹³ I test this additional explanatory variable as a robustness check since event revenues are in the denominator of Dr. Singer's dependent variable.

²¹⁴ I make no adjustments to Dr. Singer's calculated foreclosure shares. In Sections X to XIV, I discuss Dr. Singer's errors in conceptualizing and calculating these foreclosure shares.

²¹⁵ Below, I explain why it was inappropriate for Dr. Singer to include in his regression model Strikeforce bouts that occurred prior to their acquisition by Zuffa. When I estimate the regression models in columns 1-6 after excluding Strikeforce bouts that occurred before 2011, I continue to find no evidence of a relationship between Zuffa athletes' compensation and Dr. Singer's foreclosure shares. While there is a negative correlation between compensation and

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149. Aside from the negative correlation between foreclosure and compensation as a share of revenue, Dr. Singer's flawed regression model generates other nonsensical correlations that are reversed when I correctly estimate his model using compensation as the dependent variable. For example, Dr. Singer's regression model implies that Zuffa athletes' compensation decreases when athletes' rankings improve and when athletes are entitled to a portion of Zuffa PPV revenues.²¹⁶ However, when I correct Dr. Singer's regression model and use compensation levels as the dependent variable, I obtain the expected result that athletes' compensation increases when their rankings improve or they are entitled to a portion of Zuffa's PPV revenues.²¹⁷ These results indicate Dr. Singer's regression model is incorrectly specified, and that athlete pay is a more appropriate measure of athlete compensation than athlete pay as a share of event revenue.

B. ADDITIONAL ERRORS IN DR. SINGER'S REGRESSION MODEL BIAS HIS RESULTS

150. Putting aside the fact that the relationship between Zuffa athletes' compensation as a share of Zuffa event revenues and Dr. Singer's foreclosure shares is uninformative about Zuffa's monopsony power, I find that the negative relationship Dr. Singer estimates is the result of two additional critical errors he makes when estimating his regression model: (1) he inappropriately includes certain Strikeforce bouts in his regression, and (2) he improperly uses foreclosure shares that weight athletes by promoters' revenues. When I correct these errors, Dr. Singer's regression model does not provide evidence that any members of the proposed class suffered damages as a result of Zuffa's alleged foreclosure, even using Dr. Singer's uninformative measure of athlete compensation. The negative correlation Dr. Singer cites as direct evidence of Zuffa's monopsony power is a result of Dr. Singer's errors in organizing his data and specifying his model. In other

foreclosure shares in Dr. Singer's Ranked input market, these correlations are positive when I use Dr. Singer's Tracked and Headliner input markets.

²¹⁶ SINGER REPORT at Table 6. The estimated coefficients on Dr. Singer's Rank variables are positive in all three specifications. Similarly, the estimated coefficient on Dr. Singer's PPV variable is negative in each of Dr. Singer's specifications. While these correlations are not statistically significant, if Dr. Singer's regression model were specified properly, these estimated correlations would be in the opposite direction and would be statistically significant.

²¹⁷ I omit these estimated coefficients from Exhibit 13. The regression output is contained in the backup materials accompanying this report.

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words, even by the erroneous standards of his “test” for monopsony impact, his model does not show what he claims.

1. Strikeforce Is Not an Appropriate Benchmark for Zuffa

151. Dr. Singer’s regression data includes Strikeforce bouts that occurred before Zuffa acquired Strikeforce in March of 2011.²¹⁸ Regarding these pre-acquisition Strikeforce bouts, Dr. Singer explains that they effectively serve as a benchmark that he can use to determine the compensation Zuffa athletes would have received absent Zuffa’s allegedly anticompetitive actions.²¹⁹ However, Dr. Singer does not perform the statistical tests that are necessary to determine whether Strikeforce bouts observed prior to 2011 are a valid benchmark for Zuffa bouts. When I perform the statistical tests that Dr. Singer should have done but did not, I determine that Strikeforce bouts are not valid benchmarks for Zuffa bouts. When I take the appropriate step of excluding these bouts from Dr. Singer’s regression model, the negative correlation that Dr. Singer documents between his calculated foreclosure shares and the share of revenues that Zuffa pays to its athletes disappears using two of Dr. Singer’s three measures of foreclosure. In other words, his regression model does not imply any Zuffa athletes suffered damages as a result of the alleged foreclosure.

152. The pre-acquisition Strikeforce bouts are valid competitive benchmarks for Zuffa bouts only if certain conditions are satisfied. Namely, it must be true that absent Zuffa’s allegedly anticompetitive behavior, Zuffa athletes would have been compensated like Strikeforce athletes were prior to 2011. But if other factors contributed to differences between Zuffa and Strikeforce athletes’ compensation and Dr. Singer’s regression model does not control for these factors, it is inappropriate to use Strikeforce bouts as a benchmark. This is because it would be impossible to determine what portion of the differences between Strikeforce and Zuffa athletes’ compensation is attributable to the allegedly anticompetitive behavior and what portion is not.

²¹⁸ Dr. Singer’s regression data includes 7,154 bouts of which 212 were Strikeforce bouts that occurred before the Zuffa acquisition.

²¹⁹ SINGER REPORT at ¶ 183. Dr. Singer explains that Strikeforce bouts occurring prior to 2011 “effectively serve as benchmarks for the Athlete Shares that Zuffa Athletes would have received in the but-for world.”

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153. It is evident in Exhibit 14 that Strikeforce athletes are compensated differently than Zuffa athletes. The exhibit reports the average compensation per bout that athletes received for participating in Strikeforce and UFC bouts during the three years prior to Zuffa acquiring Strikeforce in 2011.²²⁰ In all years, compensation for participation in Strikeforce bouts was substantially less than for UFC bouts. In 2010, for example, Strikeforce athletes received average compensation \$34,851 per bout while UFC athletes earned average compensation of \$158,192 per bout. UFC compensation was greater by a factor of about five. Since Plaintiffs assert that the Challenged Conduct suppressed Zuffa athletes' compensation, factors besides the Challenged Conduct must be contributing to the differences in compensation reported in Exhibit 14. If there were not and Zuffa's conduct lowered athletes' compensation, then Zuffa athletes' compensation would be lower than the compensation of athletes in the benchmark group (*i.e.*, pre-acquisition Strikeforce).

154. The question then becomes whether, within his regression model, Dr. Singer adequately accounted for the factors that underlie the differences in compensation for UFC and Strikeforce athletes (apart from Zuffa's allegedly anticompetitive conduct). If he did not, then Dr. Singer cannot use pre-acquisition Strikeforce bouts as a benchmark for Zuffa, and these bouts should be excluded from his regression and damage calculations.

155. I use a statistical test to evaluate whether Dr. Singer has adequately controlled for all factors that contribute to the differences in UFC and Strikeforce athletes' compensation. I implement a well-known econometric test (Chow test) that is often used to assess the appropriateness of a benchmark.²²¹ I implement this test by allowing the coefficients in Dr.

²²⁰ These compensation levels have been adjusted for inflation that occurred between 2005 and 2016 using the Bureau of Labor Statistics CPI-U index (<https://www.bls.gov/news.release/cpi.toc.htm>). The reported compensation levels are in terms of 2016 dollars. Through this report, I make similar adjustments to all of my calculations that rely on compensation information in Dr. Singer's regression data.

²²¹ See Greene, William H., *Econometric Analysis* (7th Edition, 2011) at pp. 168-169. The Chow test (or more generally, an F-Test) is one of the most widely used econometric tests. See also ABA Section of Antitrust Law, *Proving Antitrust Damages* (2nd Edition, 2010) at p. 179. The ABA explains that a Chow test should be used to test a regression model when there is reason to believe the model's coefficients are different across customers or periods of time. "However, there may be reason to think that customers have different responses to costs and demand conditions, so there could be different coefficients on the explanatory variables across customers, including the variable measuring damages. In this case, it may be necessary to estimate the model for different groups of

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Singer's regression model to take on different values for pre-acquisition Strikeforce bouts and Zuffa bouts.²²² After estimating this modified regression, if the correlations between Dr. Singer's explanatory variables and compensation as a share of revenue are very different for pre-acquisition Strikeforce bouts than for Zuffa bouts, then the test indicates that factors unaccounted for by Dr. Singer's regression model are contributing to the compensation differences in Exhibit 14.

156. Dr. Singer's regression model fails all of the Chow tests I perform.²²³ These test results indicate that pre-acquisition Strikeforce bouts are not an effective benchmark for measuring what Zuffa athletes' compensation would have been absent Zuffa's alleged foreclosure. Consequently, pre-acquisition Strikeforce bouts should not be included in Dr. Singer's regression model, and the damages that Dr. Singer reports in his Table 11, which rely on the Strikeforce benchmark, are statistically invalid.²²⁴

2. Dr. Singer's Regression Model Predicts Zero Damages After Removing the Strikeforce Benchmark

157. In this section, I assess the predictions of Dr. Singer's regression model after removing the pre-acquisition Strikeforce bouts that Dr. Singer uses as a benchmark. Consistent with the

customers, or otherwise to employ a more complex model that takes these differences into account." If the regression model fails a Chow test, "the appropriate model needs to adequately control for such [differences]."

²²² Dr. Singer's regression model includes a Strikeforce dummy variable to control for average differences in compensation between Strikeforce and other bouts. However, his regression model implies that the relationship between other explanatory variables (e.g., athletes' rankings) and compensation is the same for pre-acquisition Strikeforce bouts and Zuffa bouts. To test these restrictions using a Chow test, I modify Dr. Singer's regression model as follows. First, I interact all of Dr. Singer's explanatory variables (except for his athlete fixed effects) with a variable that identifies all Strikeforce bouts that occurred prior to their acquisition by Zuffa. I then estimate this modified version of Dr. Singer's regression model and test the joint significance of the additional variables I added to the regression model. When I perform this test, I make sure to only apply it to those interactions for which there is sufficient data to estimate. (For example, since Strikeforce was acquired by Zuffa in 2011, there isn't sufficient data to estimate a 2012 fixed effect that is specific to pre-acquisition Strikeforce.)

²²³ I perform a Chow test on Dr. Singer's regression model using each of Dr. Singer's measures of foreclosure in the Tracked, Ranked, and Headliner markets. Dr. Singer's regression models fail these Chow tests with probability greater than 99.9999999%. In other words, the probability that Strikeforce bouts prior to 2011 are a valid benchmark for Zuffa bouts is less than 0.0000001%.

²²⁴ If a regression model fails a Chow test, it means the estimated coefficients in Dr. Singer's regression model are biased when he simultaneously applies one regression model to Zuffa bouts and pre-acquisition Strikeforce bouts. This means Dr. Singer's regression model cannot accurately predict compensation share of revenue in a but-for world. Since he cannot accurately predict but-for revenue shares, he cannot accurately predict damages.

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results of my Chow test, Dr. Singer appears to recognize that this is an appropriate exercise because he also estimates his regression model without these bouts. In particular, he argues that his regression model generates \$894 million in damages after removing pre-acquisition Strikeforce bouts. Remarkably, however, Dr. Singer does not describe the regression results he obtains after excluding the pre-acquisition Strikeforce bouts, most of which do not generate a negative correlation between foreclosure and compensation. Dr. Singer also does not address the 40 percent reduction in damages that occurs after he excludes just 212 of the 7,154 bouts in his regression data. This in itself suggests his regression model is unreliable since a well-designed regression models is unlikely to be sensitive to the exclusion of just a handful of regression observations.²²⁵

158. Examination of his estimates (*i.e.*, after excluding the pre-acquisition Strikeforce bouts) shows that there is *not* a consistent negative correlation between foreclosure and compensation as a share of revenue. In particular, Dr. Singer finds a negative correlation between athlete compensation and only one of his three measures of foreclosure. Exhibit 15 reports the results of estimating Dr. Singer's regression model after removing the 212 pre-acquisition Strikeforce bouts from the regression. In columns 1-3, I use the same revenue weighted foreclosure shares that Dr. Singer uses to calculate damages and that are reported in Figure 3 in his report. In columns 4-6, I replace Dr. Singer's revenue weighted foreclosure shares with unweighted foreclosure shares.²²⁶

159. Excluding pre-acquisition Strikeforce bouts from Dr. Singer's regression model has a large effect on the estimated relationships between Dr. Singer's measure of foreclosure and compensation as a share of revenues.²²⁷ For example, in column 1, the coefficient on Dr.

²²⁵ See ABA Section of Antitrust Law, *Proving Antitrust Damages* (2nd Edition, 2010) at p. 130. On the reliability of econometric analyses, the ABA writes: "Moreover, econometric results typically should not change materially with minor changes to the data (e.g., deleting a few observations)."

²²⁶ As I discuss in Section XIV, Dr. Singer weights athletes' bouts by their promoters' average revenues when calculating foreclosure shares. This weighting overstates the calculated foreclosure shares because Zuffa revenues are higher than rival promoters' revenues. Unweighted foreclosure shares treat all athletes equally. In other words, if Zuffa has contracts with 3 athletes out of 10, then Zuffa's share is 30 percent.

²²⁷ Removing the pre-acquisition Strikeforce bouts has a large effect on his results despite their accounting for fewer than 3 percent of the 7,154 bouts in Dr. Singer's regression data. This suggests it was inappropriate to include them in the regression model to begin with.

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Singer's Tracked input market is -0.0246 and it is not statistically significant by conventional standards.²²⁸ Similarly, in column 3 there is not a statistically significant negative correlation between compensation as a share of revenue and Dr. Singer's measure of Zuffa's foreclosure of headliners, the top-ranked athletes that Dr. Singer describes as critical for a MMA promoter to be successful.²²⁹ For Dr. Singer's Ranked market—which forms the basis for his damage estimate of \$894 million—the estimated impact of “foreclosure” declines from -0.043 in Dr. Singer's regression to -0.024 when Strikeforce bouts are removed from the sample—leading to a decline in impact of 44 percent.

160. To summarize briefly, after removing pre-acquisition Strikeforce bouts, two of Dr. Singer's three regression models imply that there is no statistically significant relationship between compensation as a share of revenue and foreclosure. Because Dr. Singer's regression models do not predict that athletes' compensation was reduced by Zuffa's alleged foreclosure, they do not provide evidence that class members were harmed.

3. By Construction, Using Revenue-Weighted Foreclosure Shares Generates a Mechanical Negative Correlation Between Foreclosure and Compensation

161. As I described in Section VII.B.2, columns 4-6 in Exhibit 15 show the results of estimating Dr. Singer's regression model after removing pre-acquisition Strikeforce bouts and replacing Dr. Singer's revenue weighted measures of Zuffa's foreclosure shares with the corresponding unweighted measure. When I do so, there is no longer a negative correlation between athlete compensation as a share of revenue and Dr. Singer's unweighted measure of foreclosure.

162. As an initial point, Dr. Singer's “weighting” schemes make no economic sense. Specifically, it makes no economic sense to adjust for athletes' quality by weighting them by their promoters' revenues when they compete. Given the previously discussed efforts of Zuffa in

²²⁸ The estimated coefficient on Dr. Singer's Tracked Foreclosure share is statistically significant only at the 10 percent level. Economists do not typically use the 10 percent threshold when defining statistical significance. In practice, economists characterize a result as statistically significant if it is statistically significant at the 5 percent or 1 percent level. See *Reference Manual on Scientific Evidence*, Third Edition (2011) at p. 251, available at <https://www.fjc.gov/sites/default/files/2015/SciMan3D01.pdf>.

²²⁹ SINGER REPORT at ¶ 112 (“There are no close substitutes for headliners.”)

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promoting its athletes and events, weighting athletes by event revenues attributes the success of Zuffa's investments and business acumen to the athlete, as if athletes in an event that generates twice as much revenue "foreclose" twice as much of the input market. Similarly, Dr. Singer's method of weighting athletes by the inverse of their ranking is simply arbitrary, with no scientific basis. It implies, for example, that the tenth ranked athlete is one tenth as important in measuring foreclosure as the top ranked athlete.

163. It is inappropriate to use unweighted foreclosure shares for two reasons. First, as I explain later in Section XIV, Dr. Singer's revenue-weighted foreclosure shares overstate the share of athletes that Zuffa has under contract by double-counting. Second, by weighting Zuffa athletes by Zuffa revenues, Dr. Singer has introduced into the regression model a mechanical negative correlation between his measure of compensation and his foreclosure shares. As Zuffa's event revenues increase, Dr. Singer's calculated foreclosure shares mechanically increase while Zuffa athletes' compensation as a share of revenue mechanically decreases.²³⁰ This leads to a negative correlation between Dr. Singer's measures of foreclosure and compensation that is unrelated to how many athletes fought for Zuffa under what terms.^{231,232} In other words, the

²³⁰ Dr. Singer's revenue weighted foreclosure shares increase as Zuffa's revenues increase because Zuffa athletes become more heavily weighted relative to Non-Zuffa athletes. Dr. Singer's dependent variable decreases because Zuffa's event revenues are in the denominator of the share of revenue that Zuffa pays its athletes.

²³¹ This mechanism contributes to the negative correlation between Dr. Singer's dependent variable and his calculated foreclosure shares despite the fact that his regressions include year fixed effects. There is "within-year" variation in Dr. Singer's revenue-weighted foreclosure shares that is related to his revenue weights because his foreclosure shares are based on 19 month windows. For example, his foreclosure shares for January 2014 reflect Zuffa revenues from Zuffa events occurring between April 2013 and October 2014. When Dr. Singer calculates foreclosure shares later in 2014, he relies more heavily upon Zuffa event revenues from 2015. For example, his foreclosure shares for December 2014 reflect Zuffa revenues from Zuffa events occurring between March 2014 and September 2015. Consequently, within 2014, Zuffa's revenue weights increase over time if Zuffa's event revenues are higher in 2015 than in 2013.

²³² In my backup materials, I demonstrate this mechanical correlation by recalculating Dr. Singer's revenue weighted foreclosure shares under the assumption that Dr. Singer's unweighted Zuffa foreclosure share is 50 percent in all months (*i.e.*, the calculated foreclosure share is equal to Dr. Singer's revenue weight for Zuffa divided by the Zuffa revenue weight plus Dr. Zuffa's non-Zuffa revenue weight). Consequently, these modified revenue weighted foreclosure shares only vary across time because of variation in Zuffa and other promoters' event revenues and not because of variation in the number of athletes who participate in Zuffa bouts, the number of athletes under contract with Zuffa, or the terms of these contracts. When I replace Dr. Singer's foreclosure shares with these modified foreclosure shares, Dr. Singer's regression model generates a statistically significant negative correlation between these modified foreclosure shares and the share of Zuffa revenues that Zuffa compensates its athletes. When I include these modified foreclosure shares and Dr. Singer's revenue weighted foreclosure shares in the same regression model, there is a stronger negative correlation between athletes' compensation and the modified

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negative correlation Dr. Singer reports between foreclosure and compensation (and consequently, damages to members of the proposed class) is an artifact of how he constructed his regression model, rather than being direct evidence of anticompetitive effects.

164. When I replace Dr. Singer's revenue-weighted measures of foreclosure with unweighted foreclosure shares in columns 4-6 of Exhibit 15, I eliminate the mechanical negative correlation described above.²³³ With this correction, the estimated coefficient on foreclosure share is positive and statistically insignificant for all three Input Market definitions—there is no evidence for a relationship between Zuffa's share of athletes under contract and athlete pay as a share of event revenue. Notwithstanding the fact that his compensation measure is economically meaningless (as I discussed in Section VI), his own model finds no relationship between compensation and so-called foreclosure.²³⁴ Consequently, there is no evidence that any Zuffa athletes suffered damages from the Challenged Conduct.

165. To test the robustness of my conclusions with respect to weighting, I have also run Dr. Singer's regression model after stratifying athletes based on their rankings and calculating Zuffa's unweighted foreclosure shares within five categories: headliners ranked between 1 and 15, athletes ranked between 16 and 30, 31 and 50, 51 and 100, and greater than 100. I then modify Dr. Singer's regression model so that athletes' compensation depends on Dr. Singer's Zuffa foreclosure share within each of these five categories. If, for example, foreclosing headliner athletes allows Zuffa to suppress compensation but foreclosing athletes ranked outside of the top 100 does not, then Dr. Singer's regression model will generate a negative correlation between athletes' compensation as a share of revenue and Zuffa's foreclosure of headliners but not Zuffa's foreclosure of athletes ranked outside of the top 100.

foreclosure share than between athletes' compensation and Dr. Singer's revenue weighted foreclosure shares. This suggests Dr. Singer's regression results are driven by the mechanical correlation I have described.

²³³ It is worth noting that Dr. Singer weights all Zuffa athletes equally when he calculates his revenue weighted foreclosure shares. In other words, if a headliner ranked in the top 15 departs Zuffa in the same month that Zuffa contracts with an unranked athlete with no record, Dr. Singer's revenue weighted foreclosure shares will not change.

²³⁴ SINGER REPORT at n. 453. Dr. Singer claims that he continues to find a negative relationship between compensation as a share of event revenue and his unweighted foreclosure shares. This statement is only true when he includes the 212 Strikeforce bouts from before 2011 in his regression model. As I explained earlier, these bouts are an invalid benchmark and should not be included in the regression model.

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166. The results of this exercise are reported in Exhibit 16. The regressions do not support Dr. Singer's claim that Zuffa used its alleged monopsony power to suppress its athletes' compensation and therefore, the regressions offer no evidence that any Zuffa athletes suffered damages from the alleged foreclosure. In column 1, I allow compensation to depend on Zuffa's foreclosure shares of athletes in Dr. Singer's Tracked market within each ranking category. In column 2, I repeat this exercise using Dr. Singer's Ranked input market. Using foreclosure shares within either Dr. Singer's Tracked or Ranked input markets, none of the correlations are statistically significant. In fact, the point estimate for headliners (ranked 1-15), whom Dr. Singer describes as a critical input into the production of MMA events, is positive (although statistically insignificant) for both of Dr. Singer's Tracked and Ranked input markets.²³⁵

167. I explained earlier that Dr. Singer's measure of compensation—athlete pay as a share of event revenue—is economically meaningless. Further, his measure of foreclosure—the share of athletes under contract to Zuffa—merely measure Zuffa's success in promoting MMA events. Even ignoring these fundamental flaws, however, the results in Exhibits 13-16 demonstrate that his regression model provides no evidence Zuffa's alleged foreclosure lowered athletes' compensation as a share of Zuffa event revenues.

C. THE SAME ERRORS THAT AFFECT DR. SINGER'S REGRESSION FOR THE BOUT CLASS AFFECT HIS REGRESSION FOR THE IDENTITY CLASS SUBGROUP

168. In Section V of his report, Dr. Singer uses his regression of athletes' compensation on foreclosure to measure damages to the Identity class.²³⁶ Using this regression, Dr. Singer determines that JDE Payments and royalty accruals to athletes in Subgroup One of the Identity Class would have increased 27 percent in Dr. Singer's but-for world. Since these damage calculations rely on the same regression model I discussed above, they suffer from the same flaws I outlined previously. Consequently, Dr. Singer's regression model does not imply athletes in Subgroup One of the Identity class suffered any harm.

²³⁵ SINGER REPORT at ¶ 112.

²³⁶ SINGER REPORT at ¶ 237.

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VIII. OTHER METHODS SHOW HOW ATHLETES HAVE BENEFITTED: ZUFFA ATHLETES PAY HAS GROWN

169. Dr. Singer's report includes several pieces of direct and indirect evidence that purport to show that Zuffa used monopsony power to suppress its athletes' compensation. Nowhere in his report, however, does Dr. Singer examine what Zuffa has actually paid its athletes over time—an examination of athlete compensation is essential to any meaningful analysis of Plaintiffs' claims, but it is conspicuously absent from Dr. Singer's report. Economic theory predicts that an employer acting as a monopsonist would suppress its employees' wages as the employer's market power increases. If Plaintiffs' allegations were correct, we should observe Zuffa decreasing compensation to its athletes during the Class period. When I perform the exercise that Dr. Singer omitted from his report, I find that Zuffa *increased* compensation to its athletes both prior to and during the Class period. This finding directly contradicts Plaintiffs' claims that Zuffa is using monopsony power to suppress its athletes' compensation.

170. I use a regression to measure changes in Zuffa compensation across years while controlling for changes in the composition of athletes participating in Zuffa bouts. Exhibit 17, reports the results of this analysis. I regress Zuffa athletes' compensation per bout on indicator variables for the year the bout occurred and additional variables (such as athletes' rankings) that control for athletes' characteristics and the type of event the bout was a part of.^{237, 238} The estimated coefficients on the year indicators then represent the change in the logarithm of compensation between 2005 and the year in question, and can be used to calculate the percentage change in average Zuffa compensation between any two years, controlling for the characteristics

²³⁷ This regression is based on Dr. Singer's processed regression data after removing bouts promoted by Strikeforce prior to their acquisition by Zuffa in 2011. The dependent variable is the log of compensation an athlete received from one Zuffa bout. On the right hand side of the regression, I include variables that measure the athlete's ranking, how many fights that the athlete has previously participated in and how many of these the athlete won, variables that identify whether the bout was part of a Strikeforce or WEC event, and athlete, weight class, and gender fixed effects.

²³⁸ Exhibit 19 displays how Zuffa compensation per bout and the composition of Zuffa bouts has changed over time. By using regression analysis, I am able to measure how Zuffa compensation has changed over time, controlling for bout composition. The exhibit reports the mean ranking of athletes in Zuffa bouts and the fraction of Zuffa bouts with unranked athletes and athletes ranked higher than 100 by year. For example, between 2013 and 2014, average compensation per Zuffa bout decreased from \$108K to \$63K. But athletes participating in Zuffa bouts had worse rankings in 2014 than 2013. Between 2013 and 2014, the average ranking of athletes in Zuffa bouts increased from 55 to 69, the percentage of bouts with athletes ranked above 100 increased from 20 percent to 29 percent, and the percentage of Zuffa bouts with unranked athletes increased from 3.6 percent to 6.2 percent.

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of athletes.²³⁹ For example, in column 1 the estimates for 2007 and 2008 are 1.27 and 1.58. These estimates imply that compensation grew by the exponent of 1.58 minus 1.27, minus 1, which is equal to 0.363. In other words, compensation grew by more than 36 percent from 2007 to 2008. Inspection of the estimates in column 1 indicates a steady upward trend in compensation of Zuffa athletes. The overall increase in Zuffa compensation during the Class period is shown in Exhibit 18. The important point is that Zuffa compensation has continued to rise during the class period—there is no evidence that compensation declined, as implied by Plaintiffs’ monopsony allegation.²⁴⁰

171. Columns 2-6 in Exhibit 17 modify the regression so that I can measure changes in compensation separately for athletes with different rankings.²⁴¹ I find that between 2011 and 2016, Zuffa increased inflation-adjusted compensation substantially to athletes within each of the ranking categories I consider. This includes athletes with low rankings and high rankings. Compensation to athletes ranked in the top 15 within their weight division increased by 21 percent between 2011 and 2016. Compensation to athletes ranked between 16 and 30 increased by a similar amount. Athletes ranked outside of the top 30 enjoyed the largest increases in compensation. Compensation per bout to athletes ranked outside of the top 30 but within the top 50 increased by 37 percent between 2011 and 2016 and compensation to athletes ranked outside of the top 50 within their weight division increased by at least 50 percent between 2011 and 2016. In short, athletes at all levels of rankings enjoyed increases in compensation over the class period.

²³⁹ In all of my analyses, I adjust compensation levels to account for inflation between 2005 and 2016 using the Bureau of Labor Statistics CPI-U Index. Reported compensation levels are in 2016 dollars.

²⁴⁰ Compensation (measured using the coefficients on the year indicator variables from the regression) in any year between 2014 and 2016 is significantly higher, at the 5 percent level, than compensation in any year between 2005 and 2009.

²⁴¹ The regression in columns 2-6 is the same as in column 1, except I interact the explanatory variables identifying which year a bout occurred in with variables that identify which ranking category an athlete is in. I consider five ranking categories: athletes ranked between 1 and 15 within their weight division, athletes ranked between 16 and 30, athletes ranked between 31 and 50, athletes ranked between 51 and 100, and athletes who are unranked or ranked outside of the top 100.

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IX. ZUFFA'S ACQUISITIONS DID NOT GIVE ZUFFA MARKET POWER IN THE INPUT OR OUTPUT MARKETS

172. The actions that Plaintiffs allege Zuffa used to foreclose rival MMA promoters include some forms of horizontal conduct, primarily the acquisition of rival promoters.²⁴² In this section I show that the acquired promoters were small, and so it is not plausible that these acquisitions allowed Zuffa to exercise monopoly or monopsony power. Moreover, the MMA marketplace has low entry barriers, due in large part to Zuffa's trailblazing efforts to raise the public profile of MMA, clear regulatory hurdles, and open up distribution channels for MMA promoters. Given these low entry barriers, Zuffa's success in expanding the market has attracted a number of rival MMA promoters that are larger than the MMA promoters Zuffa acquired and that compete aggressively against Zuffa in the current MMA marketplace.

A. THE MMA PROMOTERS ACQUIRED BY ZUFFA WERE SMALL, EXITING THE MARKET, OR BOTH

173. Plaintiffs in their Complaint, and Dr. Singer in his report, refer to several acquisitions Zuffa made of competing MMA promoters as evidence of anti-competitive behavior. Zuffa acquired WFA and WEC in 2006, Pride in 2007, Affliction in 2009, and Strikeforce in 2011.²⁴³ At the times of these acquisitions, each of the acquired MMA promoters was either too small to appreciably change Zuffa's market share in either the input or output market, was exiting the market, or both.

174. In Exhibit 20, I recalculate Dr. Singer's measures of foreclosure with the Tracked and Ranked markets, but I exclude the athletes that were signed by Zuffa as a result of these acquisitions.^{244, 245} Excluding these athletes from Zuffa's share of the input market makes no meaningful difference in Zuffa's share, using Dr. Singer's method for measuring input market

²⁴² SINGER REPORT at ¶2.

²⁴³ EPSTEIN ACQUISITIONS TR., Ex. 55 at Tab A at 2-3.

²⁴⁴ In implementing this analysis, I assume any athletes who fought for an acquired promoter during the two years prior to the acquisition would not have fought for Zuffa following the acquisition. For example, if an athlete fought for Strikeforce in 2010 (prior to Zuffa's 2011 acquisition), I assume that any post-acquisition Zuffa bouts the athlete participated in were actually promoted by a competitor.

²⁴⁵ I obtain very similar results using Dr. Singer's Headliner market. These results are contained in my backup materials.

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shares. This calculation shows that none of these acquisitions substantially increased Zuffa's share in the market for MMA athletes. In other words, none of these acquisitions had a substantial effect on any measure of putative monopsony power Zuffa may or may not have had.²⁴⁶

175. These calculations showing that Zuffa's acquisitions of competing promoters did not have a significant effect on Zuffa's share in the market for MMA athletes also imply, according to Plaintiffs' theory, that the acquisitions could not reasonably have had any effect on Zuffa's market power in the product market.

176. Furthermore, many of the promoters that Zuffa acquired were failing or already leaving the market. For example, after it was exposed that Pride had ties to the Yakuza and lost its broadcasting arrangement, Pride began to have financial difficulties and became interested in selling.²⁴⁷ The owners of Strikeforce were seeking to exit the business before Strikeforce was acquired by Zuffa.²⁴⁸ Other promoters had just failed to successfully turn a profit and were looking to get rid of their remaining contractual obligations.²⁴⁹

177. In discussing these acquisitions, Dr. Singer in his report and Plaintiffs in their Complaint note that Zuffa acquired the promoters and that, after the acquisition, Zuffa "absorbed", "closed down", "shut down", or "dissolved" the acquired promoters.²⁵⁰ Post-acquisition, many of the athletes who had previously fought for the acquired promoters fought instead for Zuffa under the UFC banner.²⁵¹ As a matter of economics, the competitive effects of these acquisitions do not depend on whether Zuffa acquired the promoters and continued to operate them as separate brands, or whether Zuffa combined the operations of these small competitors into its existing operations (thereby allowing acquired athletes to compete in UFC events). In other words, the

²⁴⁶ As I discuss below, Dr. Singer has also neither shown any evidence that Zuffa had monopsony power, nor that Dr. Singer's measure of Zuffa's purported foreclosure of the market for athletes is associated with any decrease in athlete pay or harm to athletes.

²⁴⁷ EPSTEIN ACQUISITIONS TR. at 88-90; see also FERTITTA TR. 82- 87.

²⁴⁸ EPSTEIN ACQUISITIONS TR. at 168.

²⁴⁹ EPSTEIN ACQUISITIONS TR. at 70-71 (WFA), 150-151 (Affliction); KNAPP TR. at 22-24.

²⁵⁰ See, for example, SINGER REPORT at ¶¶ 41, 43, 51; COMPLAINT at ¶ 133.

²⁵¹ EPSTEIN ACQUISITIONS TR. at 77-78, 180-81, 186-87.

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closing of the acquired promoters is irrelevant; the athletes from the acquired promoters were either signed by Zuffa or made available to sign with Zuffa's competitors. More importantly in evaluating the competitive effects of these acquisitions, as I discuss in Section XV, Dr. Singer provides no evidence of a reduction in the number of MMA events (or an increase in the price of MMA events) as a result of Zuffa's conduct.

B. THE STRIKEFORCE ACQUISITION WAS PRO-COMPETITIVE

178. In 2011, the FTC opened an investigation to review Zuffa's acquisition of Strikeforce. Among the issues addressed by Zuffa's economic experts in the declarations submitted as part of that investigation were entry barriers in the MMA marketplace, the market for MMA athletes, and the impact of the Strikeforce acquisition and prior acquisitions on athlete compensation.²⁵² The review by the FTC cleared the Strikeforce acquisition, which closed in March 2011.²⁵³

179. Even after the sequence of acquisitions identified by Plaintiffs, there was still abundant competition in the MMA marketplace. As of the end of 2011, there were at least 15 competing MMA promoters that had deals in place to broadcast their events on either cable networks or PPV in the U.S.²⁵⁴ At least two of these had entered the market in the few months following the Strikeforce acquisition.²⁵⁵ Other promoters expanded output in that same time period.²⁵⁶ This entry and expansion is indicative of low entry barriers for MMA promoters. Meanwhile, the Strikeforce acquisition and earlier acquisitions were procompetitive because they enabled UFC to stage matches between highly ranked UFC athletes and athletes who had previously been associated with the acquired promoters, to the benefit of both those athletes and of consumers.²⁵⁷ And as shown below, athlete compensation increased following these acquisitions.²⁵⁸

²⁵² See, generally, the DICK REPORT and the FORT REPORT.

²⁵³ DICK REPORT at ¶ 36.

²⁵⁴ DICK REPORT at ¶ 24.

²⁵⁵ DICK REPORT at ¶¶ 37, 39.

²⁵⁶ DICK REPORT at ¶¶ 41-44.

²⁵⁷ DICK REPORT at Exhibits 23A, 23B.

²⁵⁸ See also DICK REPORT at ¶¶ 81-90.

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C. STRIKEFORCE ATHLETES BENEFITTED AFTER ZUFFA ACQUIRED STRIKEFORCE

180. Zuffa's acquisition of Strikeforce provides a second setting to analyze whether MMA athletes were harmed by Zuffa's allegedly anticompetitive actions. When Zuffa acquired Strikeforce in 2011, Strikeforce was the second largest MMA promoter after Zuffa's UFC.²⁵⁹ Plaintiffs have challenged this acquisition as anticompetitive because it "lessen[ed] actual or potential competition with a rival or potential rival."²⁶⁰ However, Dr. Singer has provided no evidence that Zuffa's acquisition of Strikeforce (or any other promoters) harmed Zuffa (or other promoters') athletes. This is likely because, as I demonstrate below, Strikeforce athletes benefitted from the Zuffa acquisition—their compensation increased. When I analyze Strikeforce athletes' compensation before and after Strikeforce was acquired by Zuffa, I find that their compensation substantially increased following the acquisition. This is the opposite of what Plaintiffs' monopsony theory would predict.

181. Exhibit 21 compares the compensation athletes received from Strikeforce prior to the acquisition to the compensation those same athletes received after the acquisition. The exhibit includes all athletes who fought for Strikeforce in the three years prior to their acquisition (2008-2010), who continued to fight for Zuffa in the three years (2011-2013) following the acquisition.²⁶¹ These 84 athletes participated in 168 Strikeforce bouts between 2008 and 2010, and 276 Zuffa bouts between 2011 and 2013. Most of these Zuffa bouts (151 of the 276) were at UFC events and the remainder were at Strikeforce events promoted by Zuffa before Zuffa folded all Strikeforce events into UFC events at the beginning of 2013.²⁶²

182. The 84 athletes who fought for Strikeforce and Zuffa received substantially higher compensation after Zuffa acquired Strikeforce. Average compensation of these athletes was

²⁵⁹ SINGER REPORT at ¶ 47.

²⁶⁰ SINGER REPORT at ¶ 40.

²⁶¹ I used three year windows before and after the acquisition so that my analysis included a large enough number of athletes who fought for Strikeforce and Zuffa so that I can reliably measure compensation. When I narrow the window, I obtain similar results.

²⁶² Eleven of the 84 Strikeforce athletes also participated in 24 UFC bouts between 2008 and 2010. On average, these athletes received \$128K per bout from these 24 bouts.

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\$50,907 per bout when fighting at Strikeforce events between 2008 and 2010.²⁶³ After Zuffa acquired Strikeforce, these athletes' inflation adjusted mean compensation at Strikeforce events increased to \$68,605 in 2011-2013. The 56 former Strikeforce athletes who participated in UFC events between 2011 and 2013 received about \$128,211 per bout.^{264, 265} These inflation adjusted compensation increases were enjoyed by the large majority of the 84 athletes who migrated to Zuffa after the acquisition. Of the 84 athletes, 70 received higher compensation per bout after Zuffa acquired Strikeforce than before.

183. The increased compensation levels reported in the preceding paragraphs directly contradict Plaintiffs' theory. After Zuffa acquired Strikeforce and purportedly increased its monopsony power, Zuffa increased compensation paid to Strikeforce athletes.

184. Examining Strikeforce athletes' compensation before and after Strikeforce was acquired by Zuffa is analogous to comparing the prices two firms charge consumers before and after they merge. If the Strikeforce merger enhanced Zuffa's monopsony power and there were no procompetitive justifications for the acquisition, we would expect Zuffa to decrease compensation to Strikeforce athletes. Similarly, if two firms merge and there are no procompetitive justifications for the merger or other offsetting considerations, the merging firms will have an incentive to raise prices. But if the firms in fact lower their prices after merging, we would conclude that the merger did not enhance the firms' market power or procompetitive efficiencies from the merger outweighed the merging firms' enhanced market power. The same logic applies in this setting. Since Zuffa increased compensation after acquiring Strikeforce, the evidence indicates that the acquisition did not allow Zuffa to exercise monopsony power.

185. In Exhibit 22, I use regression analysis to confirm that these compensation increases cannot be explained by other changes unrelated to Zuffa's acquisition. If, for example, the 84

²⁶³ Three of the 84 athletes participated in 6 WEC bouts prior to the acquisition that were promoted by Zuffa. Exhibits 21 and 22 do not include compensation from these 6 bouts.

²⁶⁴ If I restrict my analysis to two year windows before and after the acquisition, I find that 74 athletes received average compensation of \$56 thousand per Strikeforce bout between 2009 and 2010. These same athletes received \$69 thousand per Strikeforce bout occurring between 2011 and 2012, and \$128 thousand per UFC bout occurring between 2011 and 2012.

²⁶⁵ Presumably, many of these 56 athletes would not have had the opportunity to fight in UFC events if Zuffa had not acquired Strikeforce. In the three years prior to the acquisition, the 84 athletes collectively participated in only 24 UFC bouts for which they were compensated \$128K per bout.

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athletes' rankings improved after Zuffa acquired Strikeforce, then their compensation may have also increased even if Zuffa had not acquired Strikeforce. The regressions include the 444 bouts that the 84 athletes participated in during the three years prior to and after Zuffa's acquisition of Strikeforce. They control for athletes' rankings and, in column 3, athlete fixed effects. These estimates confirm that former Strikeforce athletes were better compensated after Zuffa acquired Strikeforce than before. In column 2, when I only control for athletes' rankings, I find that the 84 athletes were compensated 45 percent more for fighting in Strikeforce bouts after Strikeforce was acquired by Zuffa.²⁶⁶ And when these athletes participated in UFC bouts, they received compensation that was 118 percent higher than the compensation they received from Strikeforce prior to the Zuffa acquisition.

186. The regression results in Exhibit 22 reinforce my earlier conclusion that Strikeforce athletes were made better off after Zuffa acquired Strikeforce in 2011. This finding directly contradicts Plaintiffs' and Dr. Singer's claim that Zuffa's horizontal acquisitions of rival promoters made MMA athletes worse off. In contrast, Plaintiffs have provided no evidence that MMA athletes were harmed by any of Zuffa's other horizontal acquisitions.

D. BARRIERS TO ENTRY FOR MMA PROMOTERS ARE LOW

187. As discussed above in Section IV.A, the entry barriers for MMA promoters are low. Where entry barriers are low, acquisitions are less likely to cause anticompetitive harm because new competitors can rapidly enter the market and compete. New and expanding promoters have ready access to all the inputs needed to stage events, including athletes, venues, sponsors, and broadcast or streaming opportunities.

188. There is a large and ever-growing selection of new MMA athletes for promoters to sign who are not signed to any promoter.²⁶⁷ Even for those athletes under contract with the UFC,

²⁶⁶ The dependent variable in each of these regressions is the log of athletes' compensation. Consequently, the estimated coefficients on the explanatory variables measure percentage changes in athletes' compensation after Zuffa acquired Strikeforce. In column 1, the estimated coefficient on the explanatory variable identifying Strikeforce bouts between 2010 and 2013 is 0.400. This implies athletes' compensation in Strikeforce bouts between 2011 and 2013 was $\exp(0.400)-1 = 49$ percent higher than in Strikeforce bouts between 2008 and 2010.

²⁶⁷ See Section IV.A.

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competitors have ready access to these athletes on a consistent basis, as described above in Section V.F.

189. Competitors also have access to a wide array of venues. The UFC itself has used 127 different venues worldwide between 2005 and 2015²⁶⁸ and there are many venues that competing MMA promoters have used that presumably are also available to new entrants as well.²⁶⁹

190. New competitors also have sufficient access to sponsors. Zuffa has exclusive relationships with a handful of sponsors in different categories (e.g., beer, cell phones, etc.).²⁷⁰ Zuffa's exclusivity to certain sponsors means that all other sponsors in those categories are available to competitors. For example, Zuffa currently has an exclusive sponsorship with Anheuser-Busch, maker of Bud Light.²⁷¹ That means that all other beer companies such as Coors Light, Miller Lite, Heineken, and others are available for competitors. For example, Miller Lite is a major Bellator sponsor.²⁷²

191. Competitors similarly have access to a wide variety of pay and free broadcast options both through television or cable and increasingly through the internet as well. Zuffa's exclusive agreement with Fox only limits competitors' access to that one distribution channel for the duration of the contract but leaves all other options open. For example, Bellator is shown on cable television network Spike TV, which will soon be re-branded as the Paramount Network.²⁷³ The Professional Fighters League has a broadcast partnership with NBC Sports Network, another

²⁶⁸ DROPICK 30(B)(6) Tr., Exhibit 51, Tab 1.

²⁶⁹ See Section IV.A.

²⁷⁰ MOSSHOLDER 30(B)(6) Tr., Exhibit 36 at Tab A at 14; ZFL-1057413-452 at 7413 and 7417 (Sponsorship Agreement with Anheuser-Busch requiring exclusivity from Zuffa in the "all alcohol beverages and non-alcohol malt beverages" category); ZFL-1069504-9518 at 9504 (Sponsorship Agreement with T-Mobile, doing business as MetroPCS, that requires exclusivity from Zuffa in the "Mobile Wireless Service" category).

²⁷¹ ZFL-1057413-452 at 7413 and 7417 (Sponsorship Agreement with Anheuser-Busch requiring exclusivity from Zuffa in the "all alcohol beverages and non-alcohol malt beverages" category).

²⁷² "Miller Lite Named the Official Title Sponsor for Bellator MMA," *Spike* (Feb. 10, 2015), *available at* <http://www.spike.com/articles/6cyxhg/bellator-mma-miller-lite-named-the-official-title-sponsor-for-bellator-mma>.

²⁷³ Luke Thomas, "Bellator MMA programming to continue in new Spike re-branded Paramount Network," *MMA Fighting* (Feb. 9, 2017), *available at* <https://www.mmafighting.com/2017/2/9/14560444/bellator-mma-programming-spike-re-branded-paramount-network-mma-news>.

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cable television network.²⁷⁴ Zuffa does not have any exclusive arrangement with Pay-Per-View and other competitors have hosted PPV events.²⁷⁵

192. These low barriers to entry are evidenced by the myriad of competitors who have entered the market after Zuffa's acquisitions, including, Bellator, the Professional Fighters League, ONE Championship, and ACB. In Exhibit 23, I show that, tracking the events by promoters that Zuffa acquired and those that came after it shows that after Zuffa's acquisitions, new competitors have entered the market and grown. As a result, there is no reason to conclude that a temporary reduction in competitors in the marketplace due to an acquisition would have long-term effects on the competition in the market.

E. THERE IS NO DIRECT EVIDENCE THAT THE CHALLENGED CONDUCT EXCLUDED RIVALS

193. Dr. Singer claims that there is direct evidence that Zuffa's Challenged Conduct excluded rivals, citing his analysis of foreclosure and market shares.²⁷⁶ However, other than with respect to horizontal acquisitions, he fails to provide actual direct evidence that the Challenged Conduct excluded rivals. A horizontal acquisition inherently reduces the number of competitors by one, absent new entry. However, I have already shown above that these acquisitions did not increase Zuffa's market power. Dr. Singer fails to distinguish between the impact of the Challenged Conduct and the procompetitive results of aggressive competition by Zuffa. As discussed in Section III, aggressive competition through superior products and business acumen will necessarily exclude less successful competitors and increase Zuffa's share in both the input and output markets. Even if it were true, as Dr. Singer claims, that "Zuffa has no close competitors remaining in the market" and that Zuffa's market share dwarfs that of other MMA promoters,²⁷⁷ Dr. Singer provides no direct evidence that the claimed dominance results from the Challenged

²⁷⁴ Jerry Bonkowski, "NBCSN to televise new MMA league bout after Daytona Xfinity race," *NBCSports* (Jun. 1, 2017), available at <http://nascar.nbcports.com/2017/06/01/nbc-n-to-televise-new-mma-league-exhibition-bout-after-daytona-xfinity-race/>.

²⁷⁵ Steven Marrocco, "Bellator 180 pay-per-view price set at \$49.95 for high-definition," *MMA Junkie* (March 27, 2017), available at <http://mmajunkie.com/2017/03/bellator-180-pay-per-view-price-set-at-49-95-for-high-definition> (discussing PPV pricing for Bellator 180 and Bellator 120).

²⁷⁶ SINGER REPORT at ¶149.

²⁷⁷ SINGER REPORT at ¶149.

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Conduct rather from successful, legitimate competition. And, as noted above, he provides no evidence that the growth in Zuffa's market share has harmed anyone, particularly athletes. On the contrary, athlete compensation increased as Zuffa grew.

194. In fact, as I discuss in Sections XIII and XIV, Dr. Singer's measures of market shares are flawed and overstate Zuffa's actual market share. Particularly when viewed from the perspective of individual weight classes, there is a sufficient number of highly ranked athletes not under contract with Zuffa to provide opportunities for competitors to set up compelling matches. Moreover, promoters do not need access to highly ranked athletes in all weight classes to be successful. For example, Scott Coker explained that Strikeforce signing top heavyweight Fedor Emelianenko and having other top heavyweights made Strikeforce a stronger competitor in the MMA promotion business and "helped the brand tremendously in the perception of the general public and our fans, and I think we gained a lot of fans all over the world."²⁷⁸ Invicta has also succeeded by promoting only women's MMA in five weight classes.²⁷⁹ Given that there are some weight classes that are not included within the UFC, Zuffa cannot foreclose rival promoters from the "critical input" needed to compete in the market. This lack of foreclosure is confirmed by the testimony of rival MMA promoters, who indicated that they could obtain the athletes needed to produce events.²⁸⁰

X. DR. SINGER ARBITRARILY DEFINES FORECLOSURE FOR THE PURPOSE OF ASSESSING INJURY AND DAMAGES

195. To support his opinion that athletes were injured by Zuffa's conduct, and to implement his computation of common impact and damages, Dr. Singer needs an estimate of the foreclosure rate with and without the contractual provisions included in the Challenged Conduct. Both of Dr. Singer's estimates are based on arbitrary assumptions rather than economic analysis of how the MMA marketplace actually would operate with and without these provisions. Dr. Singer labels contractual exclusivity of 30 as foreclosure, but his actual regression does not demonstrate a

²⁷⁸ COKER TR. 105-107.

²⁷⁹ Invicta Fighting Championship, "About," *available at* <http://www.invictafc.com/about-us/>.

²⁸⁰ C. SILVA TR. at 204-05; ATENCIO TR. at 87-88; Deposition of Kurt Otto (February 6, 2017) [hereinafter OTTO TR.] at 284-287; COKER TR. at 272-273.

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market effect of the 30-month contracts.²⁸¹ The only basis that Dr. Singer gives for the 30-month cutoff is legal case law and the career span of an athlete.²⁸² There is no basis for applying an arbitrary rule of thumb rather than conducting an economic analysis of whether contract durations foreclose competition, and what durations might have that effect. Dr. Singer has done no economic or econometric analysis showing that Zuffa contracts foreclose competition using any accepted measurement of actual competition.

196. When he turns to the foreclosure share in the but-for world, Dr. Singer again does not do any actual analysis of how foreclosure would change without the contractual provisions in the Challenged Conduct, but instead simply presumes that the foreclosure share will fall to 30 percent.²⁸³ For the 30 percent figure, Dr. Singer again inappropriately relies on what some commentators have proposed as a safe harbor for exclusive dealing.²⁸⁴ He makes no attempt to project how the market share for Zuffa would change without those contractual provisions, but with all the other legitimate sources of competitive advantage that Zuffa has relative to competing promoters, nor how the removal of the Challenged Conduct would impact the mobility of athletes among different promoters. Hence he has no basis for projecting how the foreclosure share would change but-for the Challenged Conduct.

197. The insufficiency of Dr. Singer's analysis is apparent from considering what would be entailed in bringing Zuffa's foreclosure share down to 30 percent (or below). Dr. Singer testified that there are myriad ways that the foreclosure share could become 30 percent, and for his purposes the particular avenue does not matter.²⁸⁵ But of course it matters, because his arbitrary threshold can be achieved in a number of ways, which changes the nature of contracts and the economics of Zuffa's business and the MMA marketplace. It may be that Zuffa's share of athletes in the relevant market drops to 30 percent, but it could also be that there is no change to

²⁸¹ Sections XIII and XIV identify additional errors in Dr. Singer's foreclosure share calculations.

²⁸² SINGER TR. at 39.

²⁸³ SINGER REPORT at ¶¶ 250, 252. ("These estimates assume conservatively that Zuffa's foreclosure share would fall to 30 percent in the but-for world (a level sufficient to cause anticompetitive effects), instead of falling to zero.") See also SINGER TR. at 238-239.

²⁸⁴ SINGER REPORT at ¶¶ 153, 168.

²⁸⁵ SINGER TR. at 46-49.

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Zuffa's market share, but the exclusivity period for the majority of athletes is reduced below 30 months (or whatever is the cutoff for foreclosure) so that only 30 percent of athletes are excluded. In fact, Zuffa's share of athletes could increase to 90 percent (or even 100 percent), but as long as only 30 percent of Zuffa's athletes have contracts longer than the arbitrary number of months that constitute foreclosure, then that scenario reflects the but-for world. Accordingly it makes no difference to Dr. Singer if in the but-for world Zuffa has 30 percent of the athletes, each with a 30 month contract, or if Zuffa has 90 percent of the athletes, of whom a third have a 30-month contract and two thirds of whom have a 28-month contract. If there were merit to Plaintiffs' allegations, then it would make no economic sense that these very different outcomes would have the same impact on competition. The fact that Dr. Singer treats them as identical indicates the insufficiency of his competitive analysis of the but-for world.

A. UNDER DR. SINGER'S MEASURE OF CONTRACT DURATION, FORECLOSED ATHLETES CAN INCLUDE ATHLETES WHO WERE UNDER CONTRACT WITH ZUFFA FOR SIGNIFICANTLY LESS THAN 30 MONTHS

198. An additional issue with Dr. Singer's measure of foreclosure is that he measures duration of a contract using the maximum number of months specified in the contract. In particular, Dr. Singer includes the maximum length of the right-to-match period (typically 12 months) in his measure of contract duration. However, the right-to-match provision does not prevent an athlete from fighting with a competitor for a full 12 months. Once an athlete brings a competing offer to Zuffa, Zuffa has to determine whether to match the offer or allow the athlete to join the competitor. Zuffa typically has 15 days in which to make this decision and, in order to begin a new contractual period with an athlete, must match the terms of the competitor's offer.²⁸⁶ If Zuffa were unwilling or unable to match the terms of the offer, the athlete would be free to accept the competitor's offer.²⁸⁷ If the average athlete were able to bring a competing offer to

²⁸⁶ See Exhibit 6; Section V.F.

²⁸⁷ ZFL0500960; ZFL0489704; EPSTEIN TR. 174-178, 180-181 (describing the contractual terms that "didn't make commercial sense" offered to Gilbert Melendez by Bellator that "legally wasn't possible" or "made absolutely no commercial sense to do").

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Zuffa within the first month of the right-to-match period, their effective contract duration would drop to approximately 26 months.²⁸⁸

XI. DR. SINGER DOES NOT DEMONSTRATE CAUSATION OF COMPETITIVE VERSUS ANTICOMPETITIVE CONDUCT; HE SIMPLY DEFINES A BUT-FOR WORLD AS A WORLD WITH MORE COMPETITION

199. As Dr. Singer states, aggregate damages to athletes reflect the underpayment of athlete compensation “attributable to the Challenged Conduct.”²⁸⁹ Accordingly, computing damages requires projecting what the MMA marketplace would look like “in a but-for world absent the Challenged Conduct,” and the level of athlete compensation in that but-for world.²⁹⁰ He defines his “but-for world where...the foreclosure share wasn’t as high as it was in the actual [world].”²⁹¹ However, there are at least three errors in Dr. Singer’s projection of the but-for world. First, he has not attempted to demonstrate causation from any specified conduct. The only injury and damages are tied generally to a reduction in “foreclosure.” Second, as discussed in Section X, he assumes that eliminating the Challenged Conduct would make the market competitive, using an arbitrary standard about what would be a competitive foreclosure rate, rather than actually projecting how removing the Challenged Conduct (but preserving all of the other procompetitive elements that contribute to Zuffa’s market power) would change the market. Third, he does not take into account how eliminating the procompetitive aspects of the Challenged Conduct will impact market outcomes.

200. In addition to failing to do any analysis of the foreclosure share in the but-for world absent the Challenged Conduct, Dr. Singer errs by assuming the only change in the but-for world would be a reduction in the foreclosure share and then projecting the impact that would have on athlete compensation as measured by share of revenues, holding revenues constant. As discussed in Section V, there are procompetitive reasons for the contractual provisions in the Challenged

²⁸⁸ SINGER REPORT at ¶ 89, Table 1. Table 1 of Dr. Singer’s report shows that the average duration of the initial term, option period and exclusive negotiation period (i.e. omitting the right-to-match period) is approximately 25 months. Adding 1 month for the resolution of the right-to-match period brings the total to 26 months.

²⁸⁹ SINGER REPORT at ¶ 245.

²⁹⁰ SINGER REPORT at ¶ 246.

²⁹¹ SINGER TR. at 31.

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Conduct, as evidenced by the fact that other MMA promoters use very similar contractual provisions even though they do not have monopsony power. In particular, the restrictions on athlete mobility address potential market failures due to transaction costs and the free-rider problem. These restrictions facilitate scheduling matches, such as when alternative arrangements for injured athletes must be made quickly, and prevent competing promoters from free riding on promotional investments that raise the public awareness and revenue potential of successful athletes. In the absence of such restrictions, promoters would not capture the full value of their promotional investments, and therefore would do less promotion. Both effects would decrease the revenue earned on matches. Lower revenues would likely lead to lower athlete compensation. However, Dr. Singer assumes that revenues are unaffected by elimination of the contract provisions in the Challenged Conduct.²⁹²

XII. DR. SINGER'S FORECLOSURE FRAMEWORK MEANS THAT HE HAS NOT EVEN ATTEMPTED TO DEMONSTRATE THAT MANY OF PLAINTIFFS' ALLEGATIONS HAD AN ANTICOMPETITIVE EFFECT

201. In his regression assessing common impact, Dr. Singer only considers the impact of the contractual restrictions in PAR contracts that, he claims, extend the period of exclusivity when an athlete is under contract to Zuffa. Similarly, when computing damages using his foreclosure regression benchmark, Dr. Singer only estimates the harm due to the alleged foreclosure provisions.²⁹³ Dr. Singer makes no attempt to establish that there was anticompetitive harm from other elements of Plaintiffs' Challenged Conduct apart from the exclusive aspect of PAR contracts or to estimate damages attributed to those elements, including horizontal acquisitions,²⁹⁴ counter programming,²⁹⁵ the champion's clause,²⁹⁶ the retirement clause and

²⁹² In fact, Dr. Singer states that revenues could increase in the but-for world based on what he asserts is a reduction in the number of events due to the Challenged Conduct. (SINGER REPORT at ¶246.) I address this alleged relationship between the Challenged Conduct and the number of MMA events in Section XV.C.2.

²⁹³ SINGER REPORT at ¶ 249.

²⁹⁴ SINGER TR. at 251-254.

²⁹⁵ SINGER TR. at 254-255.

²⁹⁶ SINGER TR. at 257.

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other tolling provisions,²⁹⁷ restrictions on the use of clips and sponsors with other promoters,²⁹⁸ and exclusivity provisions with venues and sponsors.²⁹⁹

XIII. DR. SINGER'S DEFINITION OF A RELEVANT ATHLETE MARKET IS FLAWED

202. As part of his assessment of Zuffa's alleged monopsony power in the input market, Dr. Singer defines a relevant input market and calculates Zuffa's share in that market. As a general matter, the purpose of defining a relevant market is to identify the sources of competitive pressure on a firm. It is a useful step in assessing a firm's market power (*i.e.*, its power to control price or restrict output), because in order to assess the degree of market power possessed by a firm, the extent to which the firm competes with other firms in the same market can be a useful metric. Once a market is defined, market shares are often calculated. It is important to note that market shares do not provide a direct assessment of market power since they do not directly address the question of power over price or the ability to restrict output. Furthermore, it is worth reiterating that a large market share or even substantive market power is not equivalent to anticompetitive harm; for example, these outcomes often result from superior business acumen.

203. With that context, I address Dr. Singer's assessment of input market definition and market power. In his report, Dr. Singer conducts what he refers to as an "indirect" assessment of market power, in which he infers the existence of monopsony power from Zuffa's alleged market share. Dr. Singer defines a relevant input market for MMA athletes and calculates Zuffa's share of that input market.³⁰⁰ It is well known that this "structure-conduct" approach is an unreliable method of inferring either the existence of or exercise of market power.

204. Dr. Singer defines the relevant input market "based on the alternatives to which fighters could reasonably substitute to counteract an exercise of monopsony power by Zuffa."³⁰¹

²⁹⁷ SINGER TR. at 258.

²⁹⁸ SINGER TR. at 259.

²⁹⁹ SINGER TR. at 259-260.

³⁰⁰ SINGER REPORT at ¶¶ 93-95.

³⁰¹ SINGER REPORT at ¶ 99.

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205. Dr. Singer proposes two alternative measures of the relevant input market, and one measure of a relevant input submarket.³⁰² Dr. Singer’s first measure of the relevant input market is the “Tracked” measure, which includes “all Fighters fighting for an MMA promoter included in the FightMetric database (which ‘tracks’ Fighter performance)...”³⁰³ He states that FightMetric tracks statistics of athletes associated with the “most prominent [MMA] organizations in the world.”³⁰⁴ Dr. Singer’s second measure of the relevant input market is the “Ranked” measure. This measure expands on the “Tracked” measure by adding to it all athletes that (a) are ranked in the FightMatrix ranking database,³⁰⁵ or (b) participated in a bout for ONE Championship (an Asian promoter).³⁰⁶ Dr. Singer also defines a relevant input submarket using the “Headliner” measure. This measure is based on data from FightMatrix and is limited to athletes that are ranked in the top 15 in any of the “ten major MMA weight classes”.³⁰⁷

206. In what follows, I explain in detail how Dr. Singer’s definition of a relevant athlete market and calculations of Zuffa’s market share are conceptually flawed.

A. DR. SINGER’S “TRACKED”, “HEADLINER”, AND “RANKED” MEASURES DO NOT ACCOUNT FOR THE COMPETITIVE PRESSURE CREATED BY POTENTIAL ENTRY

207. An important omission in Dr. Singer’s assessment of market definition and market share is that it does not account for potential entry. Assessing the competitive pressure created by the possibility of entry is an important part of market definition and market share analysis, especially

³⁰² SINGER REPORT at ¶ 95. With respect to the input markets, Dr. Singer defines the relevant geographic market as North America. Although ONE Championship is outside of the relevant geographic market, Dr. Singer includes it in the “Ranked” measure of the relevant input market. (SINGER REPORT at ¶ 124.)

³⁰³ SINGER REPORT at ¶ 99.

³⁰⁴ SINGER REPORT at ¶ 108.

³⁰⁵ This includes athletes ranked from 1 through 650 in any of the fourteen MMA weight classes in the FightMatrix database. (SINGER REPORT at ¶ 99.)

³⁰⁶ SINGER REPORT at ¶ 99.

³⁰⁷ SINGER REPORT at ¶¶ 99, 112. Dr. Singer’s “Headliner” measure excludes athletes in the following divisions: men’s strawweight, women’s featherweight, women’s flyweight, and women’s atomweight. (SINGER REPORT at n. 268.)

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in a marketplace like this one where barriers to entry are low.³⁰⁸ All of Dr. Singer’s measures – “Tracked”, “Headliner”, and “Ranked” – only reflect existing athletes, and as such do not reflect the potential impact of entry. Ignoring potential entry is a fundamental flaw in any economic analysis such as this. Ignoring the possibility of entry biases Dr. Singer’s calculation of Zuffa’s share upward, all else equal.

B. DR. SINGER’S “TRACKED” MEASURE OF THE RELEVANT INPUT MARKET IS NEITHER COMPREHENSIVE NOR CONSISTENT, BECAUSE FIGHTMETRIC DOES NOT INCLUDE ALL MAJOR MMA PROMOTERS, ONLY THOSE THAT THIRD PARTIES ARE WILLING TO PAY FOR

208. Dr. Singer’s “Tracked” measure is based on data from FightMetric.³⁰⁹ FightMetric collects data on MMA bouts and sells it to third parties like MMA promoters, sports broadcasters, and fantasy sports gaming websites.³¹⁰

209. According to the declaration of FightMetric’s founder and former director, Abraham Genauer, the set of athletes tracked by FightMetric is neither comprehensive nor consistent. For example, Fight Metric does not collect information on all MMA promoters. But when FightMetric does track bouts for a promoter, it includes statistics on all athletes of the promoter regardless of the placement of the bout on the card.³¹¹ Furthermore, the decision about which promoters to track is influenced by the willingness of third parties to pay for the information.³¹² Mr. Genauer notes in his declaration, “FightMetric’s exclusion of certain athletes from its database was not based on FightMetric’s assessment of these athletes’ skills, but rather the

³⁰⁸ There is a large potential supply of athletes that a new promoter could employ, as MMA athletes have come from, among other places, collegiate or Olympic wrestling or boxing programs, martial art academies, the military, and other professional sports. (FERTITTA TR. at 128-130; FORT REPORT at ¶ 24; DICK REPORT at ¶ 47.). See also FERTITTA TR. at 123.

³⁰⁹ SINGER REPORT at ¶ 99.

³¹⁰ GENAUER DECL. at ¶ 3, 6-7.

³¹¹ GENAUER DECL. at ¶ 4, 5, 11.

³¹² GENAUER DECL. at ¶ 6.

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promotion they compete for and whether a third party is financially willing to pay Fight Metric to track that promoter's bouts."³¹³

210. Mr. Genauer notes in his declaration that since 2008, FightMetric has had an ongoing formal business relationship with Zuffa to track the statistics for bouts promoted by the UFC, and that the majority of FightMetric's database consisted of UFC-promoted bouts.³¹⁴

211. Dr. Singer is aware that the FightMetric data is neither consistent nor comprehensive. In a November 2016 email to FightMetric, a member of Dr. Singer's team at Economists Incorporated asks about the consistency and comprehensiveness of the FightMetric data and is told that the data is neither consistent nor comprehensive:

[Economists Incorporated]: "I have a question about the sampling of the database. Did you have a formal criteria for which promoters/fighter/events you chose to record? As in, was there some benchmark a promoters [sic] had to reach before they were worthy of the time and effort in recording their fights?"

[Fight Metric]: "There isn't a hard and fast definition. It was basically an attempt to cover the two most prominent [sic] organizations in the world.... In recent years, it's become whoever the market is willing to pay for.... Sorry I don't have a perfectly consistent answer for you...."³¹⁵

212. Because the FightMetric data does not track all promoters, there are promoters and hence athletes that are excluded from the "Tracked" measure. These athletes are ranked comparably to Zuffa's athletes. To illustrate the magnitude of this omission, 788 promoters and 5,716 of their athletes who were ranked by FightMatrix during the Class Period are excluded from Dr. Singer's "Tracked" market. Of these athletes, 4,413 are ranked higher than the lowest-ranked Zuffa athlete who fought within the same division and year. (See Exhibit 24)

³¹³ GENAUER DECL. at ¶ 11.

³¹⁴ GENAUER DECL. at ¶ 8.

³¹⁵ Email exchange between Rami Genauer (FightMetric) and Augie Urschel (Economists Incorporated) (November 19, 2016).

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C. DR. SINGER’S “HEADLINER” MEASURE OF THE RELEVANT INPUT MARKET CONFLATES ATHLETES’ ABILITY WITH PROMOTER ACUMEN AND RAISES QUESTIONS ABOUT THE COMMONALITY OF THE PROPOSED CLASS

213. Dr. Singer’s “Headliner” measure defines a market that includes only top-ranked (1 to 15) athletes. In doing so, Dr. Singer ignores the role that promoters play in developing and promoting athletes. All else equal, a promoter that is more adept at helping athletes develop into headliners will have a higher share of Dr. Singer’s “Headliner” market. In other words, like his other share metrics, the headliner measure conflates athlete ability with promoter acumen.

214. This is an important issue if promoters play a material role in developing athletes. To assess Zuffa’s role developing athletes, I conducted the analysis shown in Exhibit 25. To construct this table, I began by identifying “streaks” or sets of consecutive bouts that an athlete fought for Zuffa. I limited this set of streaks to ones in which the athlete was ranked within the Top 15 at some point during the streak (hereinafter, “Headliner Streaks”). The first column in Exhibit 25 shows the year in which the athlete was first ranked within the Top 15 during a Headliner Streak, and the second column shows the associated number of Headliner Streaks. The remaining columns reflect the rank of the athlete at the start of the Headliner Streak or at the start of their first-ever bout with Zuffa. As shown in the first row of the table, in 59 percent of the Headliner Streaks during the Class Period,³¹⁶ the athlete began the Streak with a rank outside of the Top 15. In fact, the average starting rank was 47.1. In other words, Zuffa has a strong history of helping athletes develop from a low rank into the Top 15. As such, Dr. Singer’s “Headliner” measure falsely labels as “foreclosure” the outcomes of Zuffa’s successful investments and promotion of athletes.

215. Furthermore, Dr. Singer’s “Headliner” measure excludes four weight classes in which Zuffa has not traditionally participated (men’s strawweight, women’s featherweight, women’s flyweight, and women’s atomweight). By excluding categories in which Zuffa does not participate but other promoters do, Dr. Singer artificially inflates Zuffa’s share of MMA

³¹⁶ Specifically, this refers to Headliner Streaks where the year in which the athlete was first ranked within the Top 15 was between December 16, 2010 and the present.

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athletes.³¹⁷ Dr. Singer does not explain the reason for excluding athletes that are under contract with rivals.

216. Relatedly, the “Headliner” measure implies that top athletes are interchangeable across weight classes. This is not the case. For example, as Dr. Singer notes, a lightweight athlete cannot fight a heavyweight athlete.³¹⁸ Nor do promoters need top athletes in all weight classes to be competitive, as noted above.

217. Furthermore, Dr. Singer’s “Headliners” measure is an inaccurate representation of top athletes. Among the Zuffa athlete-events included in Dr. Singer’s “Headliners” measure during 2010-2016, 71 percent were not main event bouts. In addition, among Zuffa athlete-events that were main event bouts in 2010-2016, 22 percent were not included in Dr. Singer’s “Headliners” measure.³¹⁹

218. Dr. Singer’s “Headliner” measure brings into question the commonality of the proposed class. In defining a “Headliner” measure of the relevant input market, Dr. Singer implicitly assumes that athletes ranked among the Top 15 are similar to each other in terms of professional capabilities and opportunities, but also that athletes ranked among the Top 15 are different from all other athletes in terms of professional capabilities and opportunities. During the Class Period, Dr. Singer’s “Headliner” measure excludes 4 of the 6 named plaintiffs and 78 percent of Zuffa athletes overall. (See Exhibits 26 and 27) As such, even if Dr. Singer’s “Headliner” measure were not flawed in the ways described above, Dr. Singer’s “Headliner” measure would raise fundamental questions about the commonality of the proposed class. Putting aside the many flaws in his “foreclosure” measure and its incorrect use in his regressions, any “impact” of Headliner share tells us nothing about impacts on other athlete types.

³¹⁷SINGER REPORT at n. 268. Zuffa introduced a women’s featherweight division in December 2016. Zuffa has recently added a women’s flyweight weight class. Zuffa does not have a women’s atomweight or men’s strawweight class. http://www.ufc.com/athlete/Weight_Class; <http://www.ufc.com/news/UFC-208-introduces-women-featherweight-division-holm-derandamie-brooklyn>; <http://www.espn.com/espnw/sports/article/19345095/ufc-confirms-addition-women-flyweight-division>

³¹⁸ SINGER REPORT at ¶156, n. 401.

³¹⁹ SINGER BACKUP.

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XIV. DR. SINGER'S USE OF WEIGHTED SHARES IS FLAWED

219. In addition to the flaws in Dr. Singer's "Tracked", "Ranked", and "Headliner" measurements, Dr. Singer's share calculation is also flawed with regard to the use of revenue weights and rank weights.

A. DR. SINGER'S REVENUE-WEIGHTED SHARE CALCULATION IS FLAWED

220. Rather than accounting for each athlete equally in his market share calculation, Dr. Singer attempts to account for differences in athletes' ability by weighting athletes differently. He proposes two methods for weighting: first, by event revenue per athlete and second, by the inverse of an athlete's rank.³²⁰ Under the first method, Dr. Singer weights athletes by a measure of event revenue per athlete, where event revenue reflects pay-per-view and gate revenue.³²¹ However, Dr. Singer's revenue weights do not accurately reflect differences in athletes' ability or marketability. The following examples illustrate the problem.

221. According to FightMatrix, the third- and fourth-ranked light heavyweight athletes, Ryan Bader and Phil Davis, are currently under contract with Bellator. The 183rd-ranked light heavyweight athlete, James Bochnovic, is currently under contract with Zuffa. But in Dr. Singer's calculation, Bader and Davis would receive a weight proportional to \$16,969 and Bochnovic would receive a weight proportional to \$292,104. In other words, in Dr. Singer's calculations the very act of being associated with Zuffa implies that an athlete is 17 times more capable than other athletes of significantly higher rank.³²² Again, this labels as "foreclosure" the fruits of Zuffa's business acumen and related investments in marketing its athletes.

222. This example is not unique. Dan Henderson fought for Strikeforce on March 5, 2011 (pre-acquisition) and was assigned a weight proportional to \$20,508 in Dr. Singer's analysis. Later that month, Zuffa acquired Strikeforce. In July 2011, Henderson fought for Zuffa and was assigned a weight proportional to \$286,374 in Dr. Singer's analysis. Henderson's FightMatrix

³²⁰ SINGER REPORT at ¶ 128.

³²¹ SINGER REPORT at ¶¶ 128, 309. Note that Dr. Singer's revenue measure excludes broadcast revenue and thus does not fully reflect the value the event brings to the audience. (SINGER BACKUP)

³²² SINGER BACKUP.

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ranking at the time of both bouts was 7. In other words, despite no change in Henderson's rank, Dr. Singer assumes that his impact on "foreclosure" increased by a factor of nearly 14 in just five months, simply because joined Zuffa.³²³ This is absurd. Dr. Singer is not measuring foreclosure of anything, he is measuring Zuffa's distinct ability to generate value.

223. Justin Jones fought for Zuffa twice in 2014-2015, with the latter bout occurring on April 4, 2015. For both bouts, he was assigned a weight proportional to \$292,104. His rankings for these bouts were 244th and 235th. Mr. Jones then fought for four other non-Zuffa promoters later in 2015, with the first of these bouts occurring on May 7, 2015. His rankings for these bouts were 170th, 157th, 71st, and 71st. For all of these bouts, Jones was assigned a weight proportional to \$16,969. In other words, Dr. Singer estimates that Mr. Jones's ability decreased by 94 percent over a one-month period, merely because he left Zuffa, despite an increase in his rank.³²⁴ Again, this absurdly labels Zuffa's success in creating value as "foreclosure".

B. REVENUE-WEIGHTED INPUT SHARES ARE FLAWED BECAUSE THEY DO NOT ACCOUNT FOR DIFFERENCES IN PROMOTERS' REVENUES THAT ARE ATTRIBUTABLE TO FACTORS UNRELATED TO ATHLETES

224. The examples above illustrate a major conceptual flaw with Dr. Singer's revenue-weighted shares: they falsely label differences in promoter quality as "foreclosure". For example, a promoter invests in promoting athletes and bouts with the expectation that these investments will generate a return. For an athlete of fixed talent, a promoter that invests more in marketing or is better at marketing than other promoters will have a higher return, as measured by event revenue. Then differences in event revenue across promoters are determined by differences in promoters' investments and business acumen. Dr. Singer falsely labels these differences as "foreclosure" rather than "ability to create value". As a result, his "foreclosure share" measures are useless for the purpose of gauging Zuffa's ability to exercise monopsony power.

³²³ SINGER BACKUP.

³²⁴ SINGER BACKUP.

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C. WITHOUT REVENUE-WEIGHTED SHARES, DR. SINGER'S CALCULATIONS DO NOT SHOW IMPACT OR DAMAGES

225. Dr. Singer's revenue weighting error is key to his econometric evidence on anticompetitive impact. As noted in Section VII.VII.B.2, when I replace Dr. Singer's revenue-weighted foreclosure shares with unweighted foreclosure shares (and after eliminating the pre-acquisition Strikeforce bouts), there is no evidence that Zuffa pays its athletes a smaller share of event revenue when its so-called foreclosure share is high. Absent revenue-weighting, Dr. Singer can neither argue that Class members were impacted by the Challenged Conduct, nor can he argue that Class members suffered injury as a result of the conduct.

226. Dr. Singer's use of revenue weights also inflates his estimate of market share. To demonstrate this, I recalculate Dr. Singer's original revenue-weighted foreclosure share calculation based on the "Ranked" metric, by removing the revenue weights and instead controlling for differences in athlete quality by calculating shares by ranking group (e.g., athletes ranked 1-15, 16-30, 30-50, 50-100, 101+). Exhibit 28 overlays these recalculated share estimates on Dr. Singer's original revenue-weighted foreclosure share calculation based on the "Ranked" metric. As shown in Exhibit 28, removing the revenue weights from Dr. Singer's calculations results in significantly lower share estimates in every ranking group.³²⁵

D. REVENUE-WEIGHTED INPUT SHARES IMPLY THAT FIRMS WITH SIGNIFICANT MARKET POWER IN THE OUTPUT MARKET ALSO HAVE A LARGE SHARE OF THE INPUT MARKET, A CONCLUSION NOT ACCEPTED IN THE ECONOMICS LITERATURE

227. The conceptual flaw in Dr. Singer's use of revenue-weighted input shares is further illustrated by the following implication: revenue-weighted input shares imply that firms with significant market power in the output market also have a significant share of the input market. According to Dr. Singer's approach, if a firm has a high share of sales due to significant market

³²⁵ In explaining his calculation of foreclosure shares, Dr. Singer states "I consider a Fighter to be in the Relevant Input Market Athlete Pool if he or she participated in a Live MMA Event within nine or twelve months before or after the Live MMA Event in question." (SINGER REPORT at ¶ 308) Consistent with this definition, Dr. Singer calculates foreclosure shares for use in his regression analyses using a nine month window before and after each event. But in calculating foreclosure shares for use in his market share analysis, Dr. Singer calculates foreclosure using a nine month window before (not after) each event. Adjusting Dr. Singer's calculation to use a nine month window before and after each event has very little impact on Dr. Singer's market share estimates. Thus to be consistent with Dr. Singer's explanation and with his regression analyses, Exhibits 28 and 29 show Dr. Singer's market share analysis using a nine month window before and after each event.

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power in the output market, it will, by definition, have a large weight applied to its input measure. The large weight applied to its input measure will lead to an artificially inflated estimate of the firm's share of the input market. This will be true even if the firm operates in a highly competitive input market. This result is not supported by the economic literature, which recognizes that firms with significant market power and share in an output market can operate in, and have a small share of, a highly competitive input market.

E. DR. SINGER'S RANK-WEIGHTED SHARE CALCULATION IS FLAWED

228. As an alternative to revenue-weighting, Dr. Singer weights athletes by the inverse of their rank, using rank information from FightMatrix.³²⁶ As discussed above, a regression employing reasonable weighting does not support Dr. Singer's conclusions. But Dr. Singer provides no basis for the assumption that an athlete's weight should be inversely proportional to his ranking. The following examples illustrate the problem.

229. A December 30, 2016 bout matched top-ranked Amanda Nunes against fifth-ranked Ronda Rousey. Dr. Singer's weights imply that Nunes is five times more capable than Rousey. But Nunes earned \$0.2 million for the fight, while Rousey earned \$3.0 million. This demonstrates that rank is not a monotonic predictor of quality, contrary to what Dr. Singer assumes.³²⁷

230. During the Class Period, 90 percent of Zuffa's events have featured an athlete at the top of the card (the most anticipated fight of the night) who was not ranked first or second in their respective division. Again, this suggests that rank is not a monotonic predictor of quality, contrary to what Dr. Singer assumes.³²⁸ Those examples aside, however, his rank-weighted share calculation weights athletes inversely to their rank, so a top-ranked athlete accounts for five times the share of a fifth ranked athlete. This weighting is arbitrary and has no relation to the power to exclude competition in the market for MMA athletes.

³²⁶ SINGER REPORT at ¶128. The rank-weighted approach is only used with the Headliners submarket.

³²⁷ SINGER BACKUP.

³²⁸ Calculations based on FightMatrix and Sherdog data from SINGER BACKUP. For 56.5 percent of Zuffa events during the Class Period, neither athlete at the top of the card was ranked first or second in his or her division.

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F. OTHER DEFICIENCIES IN DR. SINGER'S INPUT MARKET ASSESSMENT**1. Dr. Singer Miscalculates Athletes and His Assessment of Foreclosure Is Flawed**

231. In addition to the flaws noted above, Dr. Singer's share calculation is also flawed with regard to the count of athletes and the measurement of athlete foreclosure.

232. Dr. Singer's share calculation is the number of Zuffa athletes divided by the number of athletes in (alternatively) the "Tracked", "Ranked", or "Headliner" measures. In each month, Dr. Singer does not actually calculate unique athletes under contract with Zuffa or its competitors; instead, Dr. Singer counts the number of athletes who participated in a bout for a given promoter in an 18-month window around that month (i.e. in the 9 months before or after).³²⁹ This implies that, for example, a Zuffa athlete may be counted more than once if he or she fought more than once in the 18-month window. Note also that a Bellator athlete would not be counted at all if he or she did not fight in the 18-month window. Further, an athlete who left Zuffa to fight for Bellator before the month in question, or athletes who retired or were cut by Zuffa before the month in question, will still be included in Zuffa's share provided they had a bout with Zuffa during the 18-month window.

233. With respect to athlete foreclosure, Dr. Singer uses two alternative measures to identify athletes foreclosed by Zuffa in the relevant input markets. First, Dr. Singer assumes that all Zuffa athletes under contract were foreclosed by Zuffa. Alternatively, Dr. Singer assumes that a Zuffa athlete was foreclosed by Zuffa if they were under a contract with (a) a champion's clause and (b) the duration of the contract was at least 30 months.³³⁰ For the reasons I described in Sections X to XII above, this definition of foreclosure is flawed in its conception. It is also flawed in its calculation. Dr. Singer calculates this measure as the overall length of a contract from the date of signing, and does not consider the outstanding amount of time on the contract.³³¹ Suppose, for

³²⁹ SINGER REPORT at ¶¶308-309. Dr. Singer also considers a 24-month window. SINGER REPORT at ¶¶308-309.

³³⁰ Dr. Singer calculates the duration of the contract as the sum of the initial term including the time between signing and the first bout, the option period (if any), the exclusive negotiation period, and the right-to-match period. (SINGER REPORT at ¶171.)

³³¹ SINGER BACKUP.

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example, that a Zuffa athlete was in the 36th month of a 36-month contract. Dr. Singer would consider that athlete foreclosed even though he had less than one month left on his contract.

234. I have recalculated Zuffa's share of Dr. Singer's proposed input market to address some of the deficiencies in Dr. Singer's calculations. By way of illustration, I focus on the "Ranked" measure of the relevant input market. As noted in the above, for a given month Dr. Singer's share calculation counts the number of athletes who participated in a bout for a given promoter for each month in an 18-month window around that month, which means some athletes are counted more than once. In my share calculation, I count each athlete once.³³² To avoid the biases created by Dr. Singer's revenue and rank weights, I weight each athlete equally and control for differences in athlete quality by calculating shares by ranking group (e.g., athletes ranked 1-15, 16-30, 30-50, 50-100, 101+), where an athlete's rank is as of the time the athlete joined a given promoter.³³³ I address one of the issues with Dr. Singer's definition of foreclosure by defining an athlete as foreclosed only if the athlete has at least one month left on his contract.³³⁴

235. Exhibit 29 overlays the recalculated share estimates on Dr. Singer's original revenue-weighted foreclosure share calculation based on the "Ranked" metric. As shown in Exhibit 29, addressing the deficiencies in Dr. Singer's calculations results in significantly lower share estimates in every ranking group.³³⁵ A comparison of Exhibit 28 to Exhibit 29 shows that much

³³² Specifically, for a given month I count the number of athletes who are under contract with a given promoter. I restrict my sample to athletes who have fought at least one bout within the 9 months before and after the month in question. To determine which promoter the athlete is under contract with in the month in question, I identify the bout that took place closest to the month in question, determine which promoter the athlete was associated with in that bout, and assume that this was the promoter that the athlete was under contract with in the month in question. If two bouts are equidistant from the month in question, I use the later bout to determine the promoter.

³³³ Dr. Singer uses an athlete's current ranking in his calculations, but that will overstate Zuffa's share of high-ranked groups if Zuffa is better than competing promoters at developing athletes, as noted above. As such, in calculating shares by ranking group, I measure an athlete's rank as of the time the athlete joined a given promoter.

³³⁴ As noted above, Dr. Singer categorizes a Zuffa athlete as foreclosed if they were under a contract with (a) a champion's clause and (b) the duration of the contract was at least 30 months. However, Dr. Singer calculates duration based on the overall length of a contract from the date of signing, and does not consider the outstanding amount of time on the contract. I address this issue by defining an athlete as foreclosed only if the athlete has at least one month left on his contract.

³³⁵ As noted above, I define a Zuffa athlete as foreclosed only if the athlete has at least one month left on his Zuffa contract. The sample of Zuffa contracts only includes contracts signed through November 2015. So if my share

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of the difference between Dr. Singer's original shares and the recalculated shares is due to Dr. Singer's use of revenue weights.³³⁶

2. Dr. Singer Improperly Excludes Other Combat Sports From His Input Market

236. Dr. Singer defines his market as limited to a certain set of MMA athletes and excludes other athletes from other combat sports.³³⁷ The outer boundaries of a relevant market include all alternatives to which athletes could substitute in the event of a small but significant decrease in their compensation. Dr. Singer excludes other combat sports from the relevant market because MMA athletes "must be a master of multiple martial arts disciplines" to be successful.³³⁸ But Dr. Singer has performed no economic analysis to support this market boundary.

3. Dr. Singer Fails to Properly Define the Geographic Market

237. The boundaries of the proper geographic market are the regions to which MMA athletes would turn in the event of a small but significant decrease in compensation. As noted above, Dr. Singer defines the geographic market as North America, although in his ranked measure of the input market he includes ONE Championship – an Asia-based MMA promoter.³³⁹ In limiting his geographic market definition, Dr. Singer focuses on the fact that certain international promotions have UFC-out clauses and a document references ONE Championship as a feeder league. Contrary to Dr. Singer's assertion, the presence of UFC-out clauses is indicative of competition between these international promoters and the UFC for talent. If athletes were not commonly considering transferring from these international organizations to the UFC, we would not expect to see these provisions occurring in contracts at all. Dr. Singer also ignores direct record

analysis were to extend beyond November 2015, the number of Zuffa contracts in the sample with at least one month remaining would drop. Because this outcome is driven by missing information, I end my share analysis in November 2015.

³³⁶ I have also looked at the recalculated share estimates by athlete rank and weight class. In almost every rank and weight class combination, the resulting shares are significantly lower than Dr. Singer's original revenue-weighted share calculation based on the "Ranked" metric.

³³⁷ SINGER REPORT at ¶ 101.

³³⁸ SINGER REPORT at ¶ 101.

³³⁹ ONE Championship, "About One" *available at* <https://onefc.com/about-one/>.

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evidence from ONE Championship’s Vice President of Operations and Competition who confirmed that ONE Championship “competes with Zuffa to sign professional MMA fighters” and that “One Championship is not a minor league or feeder league for the UFC.”³⁴⁰

XV. THERE IS NO DIRECT EVIDENCE THAT ZUFFA HAS MARKET POWER

A. ZUFFA DID NOT SUPPRESS ATHLETE COMPENSATION BELOW COMPETITIVE LEVELS

238. Dr. Singer points to several components of his analysis that, he claims, provide direct evidence of Zuffa’s exercise of monopsony power over athlete compensation. Foremost among them is his empirical analysis that purports to show that the exclusivity provisions of Zuffa’s PAR contracts reduce athlete compensation as a percentage of revenues.³⁴¹ As discussed above, the direct evidence actually shows that Zuffa increases compensation to its athletes during the time period Dr. Singer’s measure of foreclosure increased.

239. As additional direct evidence of suppression of athletes’ compensation, Dr. Singer discusses a “sponsorship tax” introduced by Zuffa in about 2009.³⁴² This refers to a Zuffa program (the league affiliation or brand affiliation program) in which approved sponsors within three product categories pay an affiliation fee to Zuffa for the right to sponsor Zuffa athletes. Other companies who were not subject to the sponsorship tax could continue to sponsor athletes directly, but with limitations on displaying logos at UFC events.

240. Dr. Singer makes two observations about this sponsorship program, which he claims are evidence of Zuffa’s unilateral pricing power: first, that the program diverted sponsorship money to UFC that otherwise would go to athletes, thus reducing their compensation, and also that this reduction in compensation has not prompted athletes to switch to competing promoters.³⁴³ However, neither claim is established by the evidence.

³⁴⁰ Declaration of Matt Hume (May 4, 2017) at ¶ 4.

³⁴¹ SINGER REPORT at ¶ 143.

³⁴² SINGER REPORT at ¶¶ 144, 191-2.

³⁴³ SINGER REPORT at ¶ 191

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241. Zuffa's intent was to use the brand affiliation program to grow the sport of MMA to the benefit of its athletes.³⁴⁴ Dr. Singer ignores this intent in his discussion of the brand affiliation program. Zuffa believed its athletes would benefit from associating with well-known brands such as Reebok compared to earlier and less desirable sponsors such as condom sponsors.³⁴⁵ Dr. Singer ignores these benefits in his discussion of the program. The factual record regarding Reebok indicates that Zuffa "looked at – for us Project Next [(Zuffa's internal code name for the Reebok outfitting project)] in the very first deal, this was a – it was an investment in – in the sport, in the brand, and the athletes," despite the fact that, as Denitza Batchvarova, UFC Senior Vice-President of Strategy testified, "[w]e knew that we were going to lose money on the first deal," referring to the Reebok deal.³⁴⁶

242. With respect to athlete compensation, the sponsorship program and the subsequent apparel agreement with Reebok changed multiple revenue streams flowing to athletes, increasing some while decreasing others. Some of UFC's sponsorship revenues flow directly back as payouts to athletes, including through a Fighter Endorsement Fund that requires incremental payments for promotional appearances by UFC athletes. Other cited benefits of the sponsorship tax in contemporaneous reports are that it reduces the problem of non-payment from some sponsors and increases the overall value of sponsorship by reducing clutter and the total number

³⁴⁴ BATCHVAROVA TR. AT 29-31. The factual record regarding Reebok indicates that Zuffa "looked at – for us Project Next [Zuffa's internal code name for the Reebok outfitting project] in the very first deal, this was a – it was an investment in – in the sport, in the brand, and the athletes," despite the fact that Zuffa did not expect the program to be immediately profitable, "I mean you know, I looked to generate a meaningful profit. We knew that we were going to lose money on the first deal. And so we were always looking long term to make more money for us and the athletes."

³⁴⁵ 30(b)(6) Deposition of Zuffa, LLC by Ike Lawrence Epstein (August 15, 2017) [hereinafter EPSTEIN COMPENSATION TR.] at 157.

³⁴⁶ See ZFL-1560180, ZFL-2527749, ZFL-1069504; see also Marc Raimondi, "How will the UFC's Reebok deal change the landscape? Managers weigh in," (December 9, 2014), available at <https://www.mmafighting.com/2014/12/9/7343449/how-will-the-ufcs-reebok-deal-change-the-landscape-managers-weigh-in> ("UFC president Dana White said during the press conference that the fighters would receive every last penny from the uniform deal."); Teddy Montemayor and John Bieschke, "How the UFC and Reebok Changed the Sponsorship Landscape in MMA," *MMA Newsline* (January 9, 2017), available at <http://www.mmanewsline.com/how-ufc-and-reebok-changed-sponsorship-landscape-in-mma/>.

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of sponsors.³⁴⁷ Both of these effects can increase sponsorship dollars actually flowing to athletes, in particular if approved sponsors have increased their total sponsorship payments. Moreover, as discussed above, the compensation paid to athletes by Zuffa for bouts has increased over this time period, part of which may reflect a transfer of sponsorship revenue received by Zuffa to athletes. Thus, the impact of the sponsorship tax on total athlete compensation is far more complex than the simplistic picture painted by Dr. Singer; at most one can say that the changes in total compensation resulting from Zuffa's sponsorship programs may have created some overall winners and losers among athletes.

243. Dr. Singer's second claim is that if athletes who receive less total compensation are not leaving UFC for other promoters. However, that claim is also unsupported by the evidence. As discussed in various articles, there have been athletes (including highly ranked athletes) who have left UFC for competing promoters in part because of reduced sponsorship revenue.³⁴⁸ Lawrence Epstein, the chief operating officer of UFC, testified that athletes take sponsorship payments into consideration when they decide whether to fight for UFC or a competitor.³⁴⁹ Thus, these sponsorship programs provide no direct evidence of Zuffa's market power.

³⁴⁷ 30(b)(6) Deposition of Zuffa, LLC by Ike Lawrence Epstein (July 21, 2017) [hereinafter EPSTEIN SPONSORS TR.] at 284-85; Ben Fowlkes, "The Truth About Fighters and Sponsors," (September 13, 2011), *available at* <https://www.mmafighting.com/2011/09/13/the-truth-about-fighters-and-sponsors>.

³⁴⁸ Mike Chiappetta, "The Grass Is Greener: UFC-to-Bellator Signees Speak Out," *Bleacher Report* (April 5, 2016), *available at* <http://bleacherreport.com/articles/2630256-the-grass-is-greener-ufc-to-bellator-signees-speak-out> ("Over the last 12 months, the movement of fighters from UFC to Bellator has not been a full exodus, but it may well qualify as a movement. Aside from Mitrione, Phil Davis, Josh Thomson and Benson Henderson are among the big names ranked within the Top 15 of their respective divisions who have bolted the Octagon for what they hope will be greener pastures, making free agency one of the key stories of 2016. The motivations behind the shifting attitude are multitudinous. From sponsorship money losses in the wake of the Reebok deal to contract-exclusivity concerns to simple economics to athlete treatment, more and more competitors are citing reasons to fight out their contracts and test the market....Several fighters cited the restrictive sponsorship deal signed between the UFC and Reebok as a factor in their decisions to test the market."); "How the UFC and Reebok Changed the Sponsorship Landscape in MMA," *supra* note **Error! Bookmark not defined.** ("With many unsatisfied fighters looking for a way to keep competing while simultaneously not losing out on sponsorship money, Bellator became the perfect option. Light heavyweight veteran Phil Davis was one of the first to jump from the UFC to Bellator, because of the latter's Viacom-backed contract that allows third party sponsorship. Simply put, Bellator proved to be the more lucrative option. Other fighters quickly followed suit once they became free agents.")

³⁴⁹ EPSTEIN SPONSORS TR. at 307-10.

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B. THERE IS NO EVIDENCE THAT ZUFFA RESTRICTED THE SUPPLY OF ATHLETE SERVICES

244. Dr. Singer states that Zuffa restricted the supply of athlete services by “consistently maintaining significantly more athletes under contract than it could use.”³⁵⁰ Dr. Singer cites no evidence for his assertion. As such, it is unclear on what basis Dr. Singer has for his claim that Zuffa has ever maintained more athletes under contract than it could use, let alone, that Zuffa maintains “significantly” more than it could use and has done so consistently. And he does not explain why athletes would contract with Zuffa under such circumstances if they could be fighting for other promoters. Dr. Singer’s assertion is also contradicted by the deposition testimony of Zuffa witnesses in this case.³⁵¹ Zuffa’s contracts are also governed by a term that ends at the earlier of a specific date or the completion of a certain number of bouts, which prevents Zuffa from restricting the supply of athlete services. The record evidence is to the contrary – Zuffa constantly faces challenges due to athlete unavailability and replacing athletes on a fight card is costly.³⁵²

245. Dr. Singer states that “if Zuffa lacked monopsony power, the excess athletes on Zuffa’s roster could have earned income from other promoters, rather than being bound to Zuffa during periods of inactivity (during which they did not get paid).”³⁵³ Dr. Singer’s assertion ignores the fact that many promoters, which he acknowledges do not have market power, also maintain exclusivity provisions that prohibit athletes from earning income from other promoters during periods of inactivity.³⁵⁴ Moreover, Dr. Singer ignores deposition testimony and documentary evidence showing that Zuffa did allow some athletes to compete for other promoters in the rare occurrence that it could not provide an athlete with bouts.³⁵⁵

³⁵⁰ SINGER REPORT at ¶ 145.

³⁵¹ J. SILVA TR. at 120:16-121:20.

³⁵² SHELBY TR. at 120; HENDRICK TR. at 181-182.

³⁵³ SINGER REPORT at ¶ 146.

³⁵⁴ COKER TR. at 180:20-181:3 (Bellator); LEPLAINTIFFS-0042863 at §3.5 (One Championship); WSOF001632 at §2.1 (WSOF).

³⁵⁵ J. SILVA TR. at 229-30; ZFL-0753823; ZFL-0415638; ZFL-0753136.

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C. ZUFFA'S PPV PRICE INCREASES WERE NOT ANTICOMPETITIVE, AND ZUFFA DID NOT RESTRICT THE SUPPLY OF PPV OR LIVE EVENTS

246. Dr. Singer also claims that during the class period, Zuffa used its market power in the output market to inflate the price of live MMA events and restrict the output of live MMA events. These claims are incorrect.

1. Zuffa Did Not Increase PPV Prices and the Decline in PPV Viewership Is Unrelated to the Challenged Conduct

247. Dr. Singer first claims that between 2010 and 2015, Zuffa increased prices for live pay per view (PPV) by 24 percent, which led to a 17 percent decline in the number of households purchasing a Zuffa PPV event.³⁵⁶ Yet Dr. Singer does not directly observe or measure this price increase. Rather, he calculates Zuffa's PPV prices in 2010 and 2015 by dividing the PPV revenues reported in Zuffa's income statements by the total number of PPV buys Zuffa reports in each year. Based on these calculations, he infers that Zuffa must have increased prices by 24 percent between 2010 and 2015.

248. Dr. Singer's calculations are accurate only if they reveal the prices that consumers actually paid to watch Zuffa PPV events. They do not. Zuffa shares a portion of its PPV revenues with the cable companies (e.g., DirecTV, InDemand) that distribute the PPV events to consumers and who also have a role in setting PPV prices.³⁵⁷ Thus, Dr. Singer's calculations do not reveal the prices that consumers actually paid because they do not incorporate the portion of consumers' expenditures that was distributed to cable companies, nor do they account for PPV distributors' (e.g., DirecTV) role in setting price. Dr. Singer relies on these misleading calculations, which imply a 24 percent price increase, even though he is aware that between 2010 and 2015, Zuffa actually increased their PPV prices only one time, by only 11 percent in 2015,

³⁵⁶ SINGER REPORT at ¶ 201.

³⁵⁷ Deposition of Marshall Zelaznik (February 8, 2017) at 22-23.

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from \$45 to \$50, in 2015.³⁵⁸ According to Zuffa testimony, this increase in the price of PPV was the only one Zuffa has implemented since 2008.³⁵⁹

249. Even this 11 percent increase in the nominal PPV price overstates the real increase in Zuffa's price, because of inflation. Between 2008 (when Zuffa first charged \$45 for PPV) and 2015 (when Zuffa increased its PPV price to \$50), prices for cable and satellite television services increased by 17 percent.³⁶⁰ Using cable and television prices as a benchmark indicates that Zuffa actually decreased (in real dollars) their PPV prices between 2008 and 2015 by 5 percent.³⁶¹ If I use other expenditure categories tracked by the Bureau of Labor Statistics that are related to MMA, I continue to find that Zuffa did not increase their PPV prices between 2010 and 2015, contrary to Dr. Singer's claim.^{362,363}

250. Even if Zuffa did increase the PPV prices consumers paid, Dr. Singer does not provide any evidence that these price increases were caused or enabled by Zuffa's Challenged Conduct. Firms decrease and increase prices for reasons unrelated to market power. If a firm's costs increase or demand for their product increases, it is rational for the firm to increase price. As I discussed in Section VIII, Zuffa was increasing compensation to its athletes throughout the class period. Other Zuffa expenses were also increasing as well. For example, between 2010 and 2015, Zuffa's PPV advertising expenses increased by approximately 900 percent, from \$2.1 million to

³⁵⁸ SINGER BACKUP. Dr. Singer uses Zuffa's actual PPV prices (*i.e.*, \$45 and \$50) to translate PPV buys to PPV revenues when he calculates the revenue weights for his foreclosure shares.

³⁵⁹ BATCHVAROVA TR. at 201.

³⁶⁰ CPI Detailed Reports downloaded from <https://www.bls.gov/cpi/tables/detailed-reports/home.htm>. The Bureau of Labor Statistics calculates a consumer price index (CPI) by expenditure category to track how prices throughout the United States economy are changing. Prices for "Cable and Satellite television services" increased by 17 percent between August 2008 and August 2015.

³⁶¹ Had Zuffa increased the price of PPV by 17 percent between 2008 and 2015, they would have charged more than \$52 in 2015. The price they actually charged (\$50) is approximately 5 percent lower than this price.

³⁶² Prices for "Admission to Sporting Events" and "Admission to Movies, Theaters, and Concerts" increased by 23 and 11 percent.

³⁶³ BATCHVAROVA TR. at 201-202. Indeed, Zuffa cites to inflation when explaining the \$5 increase in PPV prices. "I think it was an ordinary course of business. We had kind of looked at boxing, which was the only kind of other sport which is usually consumed on a Pay-Per-View basis, which is priced at \$70. We looked at the fact that we hadn't raised the prices – we hadn't raised the prices of Pay-Per-View for a long period of time, and essentially inflation had outpaced us significantly. And so we thought that, ordinary course of business, moving Pay-Per-View by \$5 was getting back to some market, if you will."

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\$19 million.³⁶⁴ Dr. Singer has provided no evidence linking Zuffa's PPV prices to the Challenged Conduct, or even to its putative market power.

251. While Dr. Singer's conclusion that PPV prices increased by 24 percent is based on faulty calculations, he is correct that there was a reduction between 2010 and 2015 in total PPV buys. In 2010, Zuffa held 15 events that were available on PPV and sold 7.7 million residential buys. In 2015 Zuffa sold 6.4 million residential buys over 13 events.³⁶⁵ However, this decrease was not the result of an anticompetitive increase in Zuffa's PPV prices, which did not increase. And while it is clearly uninformative to claim that every change in Zuffa's PPV offerings is the result of the exercise of monopoly power, Dr. Singer made no attempt to consider other factors that would cause Zuffa to offer fewer events. For example, in 2011, Zuffa signed a multiple year, multi-media rights agreement with Fox. As part of this deal, Fox agreed to broadcast four primetime live events per year and other Fox networks would broadcast Zuffa programming.³⁶⁶ Zuffa's broadcast deal with Fox offers a reasonable explanation for why Zuffa broadcast fewer PPV events in 2015 than in 2010 since the four Fox primetime live events were similar to Zuffa's PPV events.³⁶⁷ Furthermore, even if PPV viewership declined, it is reasonable to conclude that overall viewership of Zuffa MMA bouts increased because Zuffa events were more widely broadcast on cable television after the Fox deal than before.³⁶⁸ They were simply offered through a different channel. Dr. Singer does not analyze these issues.

³⁶⁴ SINGER BACKUP, *Zuffa Yearly Financial Statements_CKD.xlsx*. An increase in Zuffa's advertising expenses would simultaneously increase costs and demand. Moreover, Zuffa's total direct expenses increased from \$193 million to \$367 million between 2010 and 2015.

³⁶⁵ WME-ZUFFA-00001150 at 9.

³⁶⁶ ZUF-00470398.

³⁶⁷ FERTITTA TR. at 146. Responding to a question about whether Zuffa strove to include headliners in their events, the witness responded that it depends on the type of event and placed PPV events and the four Fox Primetime live events within the same category, separate from other Zuffa events. "Yes, but it depends on what events you're referring to because there were a number of events in the UFC. We had a number of events which typically are on pay-per-view or a few times were on broadcast, on Fox broadcast."

³⁶⁸ WME-ZUFFA-00001150 at pp. 8-9. Since the Fox deal, Zuffa's PPV buys have increased each year except in 2014, which Zuffa attributes to "a unique mix of bad luck and bad management." In 2014, PPV buys were adversely affected because for eight of Zuffa's thirteen PPV events, the main bouts were cancelled within several weeks of the event. Since Dr. Singer does not control for such bad luck, his methodology would attribute the resulting decline in PPV buys to Zuffa's Challenged Conduct.

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2. Zuffa's Conduct Did Not Lead to a Decrease in the Total Supply of Live MMA Events

252. Dr. Singer also claims that Zuffa's Challenged Conduct led to a decrease in the total supply of live MMA events produced by Zuffa and rival promoters during the class period.³⁶⁹ Below, I first describe how Dr. Singer reaches his conclusion. Then I explain why Dr. Singer's evidence is misleading and the conclusions he draws from this evidence are incorrect.

253. Dr. Singer's purported decreases in the supply of live events that are a consequence of Zuffa's Challenged Conduct are displayed in figures 4A-C of his report. The three figures report the number of observed MMA events that include athletes in his Tracked, Ranked, and Headliner input markets, respectively.³⁷⁰ To calculate how many events would have been produced but for Zuffa's challenged conduct, Dr. Singer uses a linear regression to estimate the trend in live events between 2001 and 2010. He then uses this estimated trend to forecast how many events would have been produced during the class period if the 2001-2010 trend had persisted. Dr. Singer claims, for example, that absent the Challenged Conduct there would have been approximately 1800 events in 2016 featuring athletes in his Ranked input market instead of 657.³⁷¹ Of course there is no reason why a more mature market that existed after 2010 would grow at the same high rate as when the market was just starting out, and Dr. Singer makes no attempt to defend this assumption.

254. Dr. Singer's approach reliably measures the effect of Zuffa's Challenged Conduct on the supply of live MMA events only if the Challenged Conduct is the only reason Zuffa produced fewer events than Dr. Singer forecasts using the 2001-2010 trend. This is clearly not the case. Dr. Singer uses information on the number of events produced from as early as 2001 when the MMA industry was still in its infancy.³⁷² The growth in events that Dr. Singer documents between

³⁶⁹ SINGER REPORT at § III.D.5.

³⁷⁰ Dr. Singer includes an event in Figure 4A if the event included at least one athlete who was a part of Dr. Singer's Tracked input market. He uses an analogous approach to count the number of live events within his Ranked and Headliner markets in Figures 4B and 4C.

³⁷¹ SINGER BACKUP.

³⁷² SINGER REPORT at ¶¶ 23-24; SINGER BACKUP. In 2001 UFC was purchased for only \$2 million and in 2016 was worth approximately \$4 billion. Dr. Singer describes UFC as "privately owned and operated by a small group of individuals 2001." However, it was still one of the largest MMA promoters at that time. In 2001, the only promoter

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2001 and 2010 occurred as the MMA industry was evolving into a mature industry. To assume that this growth would persist beyond 2010 is analogous to assuming children grow as much between their tenth and twentieth birthdays as between birth and their tenth birthdays.

255. I use results from Dr. Singer's Figure 4B to demonstrate that his approach generates unrealistic and therefore, unreliable, predictions. In 2016, there were approximately 9 bouts in each of the 616 events that Zuffa's rivals produced and were included in Dr. Singer's Ranked market. Dr. Singer predicts that these same promoters would have produced an additional 1,137 events if the trend from 2001 to 2010 persisted into the class period. But it is very unlikely Zuffa's rivals would have been able to find athletes to participate in these additional events, especially under Dr. Singer's assumptions that the supply of athletes with MMA skills is severely limited. If these 1,137 events had taken place and were similar to the 616 events that did take place, Zuffa's rivals would have needed to find athletes to participate in more than 10,000 additional bouts. Even if Zuffa's rivals had access to every single athlete Dr. Singer included in his Ranked input market in 2016 (approximately 2,500 athletes), each of these athletes would have needed to participate in 8.5 additional bouts in order fill the fight cards in these additional 1,137 events. Since athletes in Dr. Singer's Ranked input market typically fight in only two bouts per year, it is not realistic to think Zuffa's rivals would have been able to actually produce the additional events Dr. Singer says would have occurred absent the Challenged Conduct. And if they could, Dr. Singer's calculations imply that his input market definition is completely wrong – Zuffa's share of the supply of athletes available to MMA promoters is much lower than his "foreclosure share" calculations imply.

256. The unrealistic predictions Dr. Singer generates from his approach underscores how unreliable it is.³⁷³ Nowhere does Dr. Singer establish a causal relationship between Zuffa's Challenged Conduct and the supply of MMA events produced during the class period. Instead, Dr. Singer defines a benchmark and then attributes any differences between the number of events

within Dr. Singer's Tracked input market that held more events than UFC was Pride. Pride held 6 events, one more than UFC.

³⁷³ The supply reductions Dr. Singer displays in Figures 4A and 4C rely on the same methodology as in Figure 4B. Since the methodology underlying 4B generates unrealistic predictions, I conclude that the predictions Dr. Singer makes in Figures 4A and 4C are also unreliable.

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produced during the class period and the number of events implied by the 2001-2010 trend to Zuffa's Challenged Conduct. Since there are differences between the class period and Dr. Singer's benchmark period unrelated to Zuffa's Challenged Conduct, it is incumbent on Dr. Singer to decompose differences between the 2001-2010 trend and observed supply into portions related and unrelated to Zuffa's Challenged Conduct. Since he has not, his conclusion that Zuffa's Challenged Conduct reduced supply is merely an unsupported and implausible assertion.

257. In Exhibit 30 I estimate total attendance at the events Dr. Singer includes in his Figure 4A. In 2010, total attendance at the 73 events with athletes from Dr. Singer's Tracked market was approximately 650 thousand.^{374,375} Two years later in 2012, total attendance was approximately the same (625 thousand), despite there being only 62 events. This is because Zuffa produced more events in 2012 than 2010 (36 instead of 32) and Zuffa events attracted larger audiences than their rivals. Overall, average yearly attendance at MMA events produced between 2011 and 2016 was 629 thousand. This level of attendance is slightly lower than one year prior to the class period (648 thousand) and slightly higher than two years prior to the class period (618 thousand).³⁷⁶

258. Dr. Singer also ignores television viewership when he asserts that the supply of live MMA events decreased. Antitrust policy regarding the exercise of monopoly power asks whether a putative monopolist restricted supply in order to raise price, which harms consumers. But consumption of MMA events does not occur simply by attendance at MMA events; millions of people watch MMA broadcasts on television, so any measure of MMA consumption must include these viewers. Further, MMA athletes benefit from the greater exposure they receive on

³⁷⁴ To calculate total live attendance, I rely on the same MMA Payout data that Dr. Singer uses to calculate the revenue weights that enter his foreclosure shares. I identify which events in the MMA Payout data include athletes in Dr. Singer's tracked market. For this set of events, I then calculate yearly average attendance at Zuffa events and events produced by Zuffa's rivals. I then apply these yearly averages to each of the events that Dr. Singer includes in his Figure 4A.

³⁷⁵ The exhibit does not report total attendance for the years 2001 through 2005 because the MMA Payout data does not contain data from these years.

³⁷⁶ Total attendance at MMA events during the class period was substantially higher than attendance between 2006 and 2009, during which attendance varied between 461 thousand and 618 thousand. But as I have previously discussed, the years immediately prior the class period are more appropriate benchmarks for the class period than earlier years.

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television broadcasts.³⁷⁷ In Exhibit 31, I correct Dr. Singer's omission and compare television viewership of MMA events immediately before the class period to television viewership during the class period. Again, I find no evidence that the MMA supply as measured by total consumption of MMA events decreased during the class period.^{378,379} In 2009 and 2010, 27 and 38 million viewers watched television broadcasts of MMA events produced by the promoters Dr. Singer includes in his Tracked market. During the class period, viewership of events in Dr. Singer's Tracked market was consistently higher, ranging between 47 and 45 million in 2011 and 2012, to 60 million in 2016. Thus, TV viewership increased during class period and there is no basis to argue MMA athletes received less exposure as a consequence of the Challenged Conduct.

D. THERE IS NO EVIDENCE THAT ZUFFA HAD THE POWER TO EXCLUDE RIVALS

259. Dr. Singer states that Zuffa's alleged power to exclude rivals is direct evidence of market power. As explained in Section IV, Zuffa has not excluded rivals and indeed has faced and continues to face vigorous competition in the marketplace. Moreover, as described in Section IV, the barriers for MMA promoters to enter the market are low, thus negating any ability for Zuffa to exclude rivals.

³⁷⁷ FERTITTA TR. at 192-94. Testimony suggests that Zuffa athletes sometimes preferred fighting in preliminary bouts because of increased network exposure. For example, Urijah Faber "used to ask to be the main event of the prelims because he knew that for two or three weeks on Fox Sports 1 and Fox Sports maybe during a game in the NFL where millions and millions of people are watching, he was going to be promoted as the commercial because that event was going to be aired on Fox Sports 1."

³⁷⁸ I use Nielsen data provided by Zuffa to measure total TV viewership between 2005 and 2016. It is my understanding that these data include all MMA telecasts that were aired on networks tracked by Nielsen. The Nielsen data includes events promoted by USF, Strikeforce, WEC, Bellator, EliteXC, International Fighting League, World Series of Fighting, and BODOG. I exclude IFL, WSOE, and BODOG viewership from the data as these promoters are not included in Dr. Singer's Tracked input market.

³⁷⁹ The PPV viewership data only includes Zuffa residential PPV buys. It is my understanding that rival promoters rarely made their events available on PPV.

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XVI. DR. SINGER DOES NOT OFFER MEANINGFUL EVIDENCE THAT A COMMON COMPENSATION STRUCTURE EXISTS FOR ZUFFA ATHLETES**A. DR. SINGER DOES NOT UNDERSTAND AND MISCHARACTERIZES ZUFFA'S COMPENSATION STRUCTURE**

260. Dr. Singer claims there is documentary and testimonial evidence that Zuffa relies on a formulaic compensation structure.³⁸⁰ Dr. Singer appears to fundamentally misunderstand how Zuffa determines compensation. While many athletes begin their careers at Zuffa with similar compensation structures, how compensation evolves over time is specific to each athlete and cannot be reduced to a formula.

261. Dr. Singer presents a document labeled “Minimum Fighter Pay” as evidence of “formulaic pay” at Zuffa.³⁸¹ The document lists the compensation a Zuffa athlete would receive over the course of twelve bouts covering their first three contracts at Zuffa. If, for example, the athlete lost their first bout with Zuffa, they would receive \$8,000 in show compensation. If the athlete then rebounded, and reached the fourth bout on a third contract, they would be guaranteed at least \$45,000 in show compensation for a fourth bout on their third contract.

262. Dr. Singer states that “between 85 and 90 percent of bouts in 2013-2014 involved compensation within the range given above (between \$8,000 and \$45,000)”, as if to suggest that a large fraction of Zuffa athletes were compensated according to the terms in one of the three contracts listed in the document.³⁸² But Dr. Singer does not actually demonstrate that any athletes were compensated according to the terms listed in the “Minimum Fighter Pay” document. This is not surprising since the “Minimum Pay Document” is not a real Zuffa contract. Rather, it was simply a forecasting tool used to estimate the effects of increasing minimum compensation. Dr. Singer quotes the author, Deni Batchvarova, Senior VP of Strategy, that the document is a planning document and not a description of actual UFC policy.³⁸³

³⁸⁰ SINGER REPORT at ¶ 216.

³⁸¹ SINGER REPORT at ¶ 220.

³⁸² SINGER REPORT at ¶ 222.

³⁸³ SINGER REPORT at ¶ 221.

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263. Also within the “Minimum Pay Document”, is a figure that displays the distribution of Show compensation levels across Zuffa bouts in 2013 and 2014.³⁸⁴ While it is true that the level of Show compensation was close or equal to \$8,000 or \$10,000 in approximately 50 percent of Zuffa bouts in 2014, the figure also indicates that there was substantial variation in Show compensation for the remaining fifty percent of Zuffa bouts.³⁸⁵ In other words, the “Minimum Pay Document” that Dr. Singer cites as evidence of a common compensation structure, in fact indicates there is substantial variation in compensation across Zuffa athletes. The question then becomes, what explains this variation in Show compensation across Zuffa bouts? Is the variation driven by common factors that can be used to assign damages if Zuffa is held liable for the Challenged Conduct, or idiosyncratic individual factors that cannot easily be characterized?

264. Dr. Singer ignores substantial testimony that Zuffa compensation is primarily driven by individual factors, and not common factors. Lawrence Epstein, who was deposed by plaintiffs on the topic of athlete compensation at Zuffa explains that athlete compensation depends on “many, many factors” including:³⁸⁶

- the athlete’s experience,
- Zuffa’s assessment of the athlete’s potential,
- the athlete’s notoriety,
- the athlete’s representation,
- representation’s negotiation tactics, specifically, representation’s awareness of other Zuffa athletes’ compensation, and
- rival promoters’ interest in the athlete.

265. It is true that that Zuffa has a minimum pay structure that is potentially applicable to many entry level athletes and Zuffa athletes do consistently receive higher compensation after

³⁸⁴ ZFL-0895315.

³⁸⁵ The figure displays the cumulative distribution of Show compensation levels across bouts in 2013 and 2014. Discrete jumps in the distribution at \$8,000 and \$10,000 indicate that these were the levels of show compensation in about fifty percent of Zuffa bouts in 2014. The absence of large discrete jumps in the distribution function at other levels of compensation indicate that Zuffa athletes received every level of Show compensation (possibly in \$2,000, \$5,000, or \$10,000 increments) greater than \$10,000 (e.g., \$12,000, \$15,000, \$20,000, etc.)

³⁸⁶ EPSTEIN COMPENSATION TR. at 29-32.

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recording wins. But even initial compensation structures³⁸⁷ and compensation increases following wins vary widely across athletes,³⁸⁸ and these compensation structures depend on athletes' unique attributes.³⁸⁹ According to Mr. Epstein, Zuffa doesn't group its athletes into tiers of "beginner, intermediate, and expert" for the purposes of determining compensation.³⁹⁰ When asked about the "Minimum Fighter Document" that Dr. Singer cites, Mr. Epstein described the document as "taking a look at the possibility of discretionary bonuses and increasing the minimum starting contract – for athletes' minimum – not starting, but the minimum contract for athletes. And we were just taking a look – a look in a holistic way."³⁹¹ In other words, there is no compensation formula that can be used calculate damages.

B. DR. SINGER'S REGRESSION OF ATHLETES' COMPENSATION ON OTHER ATHLETES' COMPENSATION IS ALSO FLAWED AND PROVIDES NO EVIDENCE OF A COMMON COMPENSATION STRUCTURE

266. Dr. Singer proposes a regression analysis of individual athlete compensation on the average compensation of all other athletes to test whether "gains (or losses) in compensation are broadly shared across the Bout Class."³⁹² He runs a regression of Zuffa athletes' annual average compensation per event ("own compensation") on the average total compensation per event across all *other* Zuffa athletes ("others' compensation") in the same year, and includes a linear time trend and athlete fixed effects as additional explanatory variables. In addition, Dr. Singer runs a second regression that replaces others' compensation with the one-year lagged value of this variable (i.e., he regresses own compensation in 2015 on others' compensation in 2014). Dr. Singer finds a positive and significant coefficient on others' compensation in both the current

³⁸⁷ EPSTEIN COMPENSATION TR. at 24-27 ("Every athlete comes into the UFC in a different level of their – of their history and their development of their career, and it's all depending upon that.")

³⁸⁸ EPSTEIN COMPENSATION TR. at 25-26 ("[I]t all depends on what the manager of the athlete or the lawyer for the athlete negotiates with our matchmaking team, or our legal team.")

³⁸⁹ EPSTEIN COMPENSATION TR. at 27-28 ("So are you asking me about a fighter that starts out at 10 and 10 now? Or are you talking about a guy, like Eddie Alvarez, or some other athlete that comes in that we may pay hundreds of thousands of dollars to – with a piece of pay-per-view too...?")

³⁹⁰ EPSTEIN COMPENSATION TR. at 33-34.

³⁹¹ EPSTEIN COMPENSATION TR. at 69.

³⁹² SINGER REPORT at ¶228.

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and lagged year regressions, and concludes that the regressions provide evidence “of a pricing structure, and accordingly, of common impact flowing from generalized compensation suppression.”³⁹³ This is nonsense. The fact that my pay as an economist tends to move with the average pay of other economists does not imply the existence of a “pricing structure” that determines the pay of economists.

267. Dr. Singer’s regressions provide no evidence of a compensation structure or common impact from the alleged bad acts. There are many reasons why the compensation of athletes would be correlated that are unrelated to a compensation structure, just as the earnings of any other individuals working in the same profession or for the same employer are likely correlated. However, even accepting Dr. Singer’s premise that the only explanation for the correlation between own and others’ compensation in his regression is a compensation structure, I show that after correcting key flaws in Dr. Singer’s analysis, his regression provides no evidence whatsoever of a compensation structure or that any harm from the Challenged Conduct would have been broadly shared across all members of the Bout Class.

268. First, when Dr. Singer regresses own compensation on others’ compensation, he uses compensation data from 2005 through 2016. It is unclear why Dr. Singer would use compensation information that predates the class period, since common compensation structure during the class period is what is relevant to the issue of class certification. In columns 1 and 2 in Exhibit 32, I present versions of Dr. Singer’s regressions making only one change: I limit the analysis to the Class Period (2010-2016).³⁹⁴ When I do this, I no longer find evidence that own compensation is correlated with others’ compensation, either in the same year or in the previous year. Thus, even if I were to accept Dr. Singer’s own regression and his incorrect interpretations of the regression, there is no evidence of a common compensation structure during the Class Period. Rather, his result is driven by compensation increases that occurred prior to the Class Period.

³⁹³ SINGER REPORT at ¶229.

³⁹⁴ I include 2010 in the regression to be conservative since the Class period does include the last two weeks of 2010. When 2010 is excluded from the regression model, the results do not change.

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269. Second, Dr. Singer interprets the positive and significant correlations between Zuffa own compensation on others' current and lagged compensation as evidence that "gains (or losses) in Athlete compensation are shared broadly across Class members both within and across years."³⁹⁵ However, his interpretation of these correlations is incorrect, because he measures the correlations using two separate regressions. Suppose, for example, the correlation between own compensation and the compensation of other athletes who fight within the same year is driven by the fact that both are correlated with previous compensation levels from previous years (which is omitted from his first regression). If so, then it would not be true that gains in athlete compensation are shared broadly across Class members within years, and his regression would show no evidence of a compensation structure. Dr. Singer provides no explanation as to why he runs separate regressions for the current and lagged values of others' compensation

270. In column 3 of Exhibit 32, I present an alternative version of Dr. Singer's regressions (for 2005-2016) that includes both current and lagged values of average others' compensation as explanatory variables in the same regression. When I make this correction, I no longer find a positive correlation between an athlete's compensation and other athletes' compensation within the same year. While there remains a correlation between an athlete's compensation and other athletes' compensation in the previous year, in no way does this indicate the existence of a "common compensation structure".

271. In column 4, I present the results of estimating the specification in column 3, but limiting to the 2010-2016 time-period.³⁹⁶ Again, I find no evidence of any correlation between own compensation and average others' compensation (current or lagged). On the basis of this regression, and the regressions discussed in the preceding paragraphs, I conclude that Dr. Singer's analysis provides no evidence of a common compensation structure and no evidence that any harm from the Challenged Conduct would be broadly shared across members of the Bout Class.

³⁹⁵ SINGER REPORT at ¶229.

³⁹⁶ When 2010 is excluded from the regression model, the results do not change.

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C. DR. SINGER'S REGRESSION OF COMPENSATION ON COMMON FACTORS OVERSTATES THE FRACTION OF COMPENSATION EXPLAINED BY COMMON FACTORS

272. In a second econometric exercise, Dr. Singer argues that Zuffa athletes face a common compensation structure based on a regression analysis that purports to show that “common” factors explain 78 percent of the variation in Zuffa athletes’ compensation.³⁹⁷ However, a simple exercise demonstrates that Dr. Singer’s methodology overstates the fraction of athletes’ compensation that is explained by these common factors. When I use Dr. Singer’s exact methodology to determine the fraction of athletes’ compensation that is explained by Dr. Singer’s athlete-specific explanatory variables (*i.e.*, explanatory variables that are not common), I find that they explain 79 percent of the variation in athletes’ compensation.³⁹⁸ Clearly, it does not make sense for Dr. Singer’s common factors and athlete-specific explanatory variables to simultaneously explain 78 and 79 percent of the variation in Zuffa athletes’ compensation. Therefore, I conclude that Dr. Singer’s methodology does not reliably measure the fraction of athletes’ compensation explained by common factors.

D. DR. SINGER DOES NOT DEMONSTRATE COMMON IMPACT ON THE IDENTITY CLASS

273. Dr. Singer does not demonstrate common impact for either Subgroup within the Identity Class. As I explained in VII.C, Dr. Singer measures damages to Subgroup One within the Identity Class using his regression model of compensation as a share of revenue on his measure of foreclosure. When I correct Dr. Singer’s regression model, there is not a negative relationship between compensation and Dr. Singer’s measure of foreclosure. Therefore, Dr. Singer has no basis to argue any members of Subgroup One within the Identity Class were harmed by the Challenged Conduct.

³⁹⁷ SINGER REPORT at ¶ 227. Dr. Singer regresses athletes’ logged compensation on all of the explanatory variables in his Table 6 except for those that are athlete-specific. His common variables include athletes’ rankings, records, weight divisions, year and venue fixed effects, and others. His excluded variables that are athlete specific include his athlete fixed effects, performance data from Fight Metric, and variables that indicate whether the athlete’s compensation for a bout included any discretionary bonus payments (*e.g.*, Fight of the Night bonuses).

³⁹⁸ The athlete-specific explanatory variables that I include in the regression are athlete fixed effects, Fight Metric performance data (*e.g.*, percentage of strikes landed), and discretionary performance payments (*e.g.*, explanatory variables that identify Fight of the Night and Knockout of the Night performances).

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274. Dr. Singer’s approach to measuring impact to Subgroup Two is also flawed and unreliable. To do this, he first assumes that in the but-for world, all athletes would have received some nominal payment for granting their identity rights to Zuffa. Dr. Singer then claims to estimate this nominal payment from a Zuffa document showing recommended payments to athletes for use of their identities in a UFC Electronics Arts video game.³⁹⁹ The document recommends placing Zuffa athletes into various tiers and then specifies payments to athletes ranging from \$2,500 to \$25,000 based on which tier they are in. To measure impact, Dr. Singer simply assumes that all Zuffa athletes would have received at least \$2,500 in exchange for their identity rights. But Dr. Singer offers no economic analysis, or any form of justification for that matter, in support of this assumption. Simply transcribing a dollar value from a document is not a valid way to assess impact.

275. Furthermore, Dr. Singer’s approach to measuring damages to Subgroup Two (*i.e.*, simply assuming Zuffa would have paid athletes \$2,500) is based on an incorrect understanding of the underlying document – ZFL-1056348 – that contains the recommended payments. Dr. Singer believes that this document reflects payments “that Zuffa offered to Fighters in exchange for Identity rights that Zuffa needed but had neglected to previously acquire.”⁴⁰⁰ This appears to be untrue as Zuffa’s standard promotional agreement language changed in 2008 to include language relating to athletes granting to Zuffa an exclusive right to their identity for inclusion in UFC-branded video games.⁴⁰¹ Dr. Singer’s reliance on a document from 2015 with “recommended” payments to athletes for use of their identities⁴⁰² at a single point in time, based upon rights that had already been contracted upon, is not a reliable basis to measure the payments that would have been made in a but-for world.

³⁹⁹ SINGER REPORT at ¶¶ 238-239

⁴⁰⁰ SINGER REPORT at ¶ 239

⁴⁰¹ HENDRICK CONTRACTS TR., Ex. 2 at 37.

⁴⁰² ZFL-1056348.

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XVII. DR. SINGER'S DAMAGES CALCULATIONS ARE IRRETRIEVABLY FLAWED

276. The damages calculations in Dr. Singer's report build upon his foreclosure analysis. Although he presents several variations with different inputs and results, the core methodology is the same: compute what the revenue share paid by Zuffa to athletes would be if the foreclosure percentage were lower, and then multiply actual Zuffa revenues by the difference in revenue share to compute how much more athletes would have earned absent Zuffa's high foreclosure share.

277. Before discussing the flaws in Dr. Singer's calculations, I note that Dr. Singer argues that the damages he estimates (between \$811 million and \$1.6 billion for the Bout Class, and \$37 million for the Identity Class) should not be "constrained by the contemporaneous revenue and profit earned by Zuffa in the actual world."⁴⁰³ That is, Dr. Singer appears to argue that but-for the Challenged Conduct, output would have been higher and Zuffa would have been more profitable, thereby increasing the amount of money that Zuffa could have paid to its athletes. But this is economic nonsense. In the actual world, Zuffa is a successful, profit-maximizing MMA promoter that built and grew the business of MMA, legitimizing the sport and increasing consumer demand. (See Section III.) Dr. Singer has presented no evidence that output has been reduced as a result of Zuffa's actions; rather, the history of the MMA industry suggests precisely the opposite: without Zuffa's market-building efforts, the market for MMA events would be smaller.

A. DR. SINGER ARBITRARILY CHOOSES A FORECLOSURE SHARE THAT GENERATES AN ARBITRARY BUT-FOR COMPENSATION LEVEL

278. As discussed in Section X, the foreclosure shares used in Dr. Singer's regression benchmark are based on an arbitrary 30-month rule that has no basis in any economic analysis of foreclosure impact. Moreover, the foreclosure share in the but-for world is based on an arbitrary assumption about the contracts that would prevail in a competitive marketplace. He provides no analysis of the impact of removing the challenged contractual provisions on athlete mobility that accounts for the legitimate and procompetitive investments that Zuffa has made in its product,

⁴⁰³ SINGER REPORT at ¶ 246.

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and which would not change in the proper but-for world. Dr. Singer bases his estimate of damages on an arbitrary projection of changes in foreclosure share, rather than a proper comparison between the current marketplace and how the marketplace would change in the but-for world.

B. DR. SINGER DOES NOT AND CANNOT DIRECTLY MEASURE DAMAGES FOR ALL CLASS MEMBERS

279. A second fundamental problem with Dr. Singer's damages calculations is that none of these calculations is able to directly measure harm to each member of the proposed class. For example, as I discussed in Section VII Dr. Singer uses the relationship between athlete compensation as a share of revenue and his foreclosure share to calculate damages to members of the Bout class. Dr. Singer's regression model, however, is not designed to measure whether each Bout class member suffered damages. Rather, Dr. Singer uses his regression model to measure an average correlation between his flawed measures of foreclosure and athlete compensation across all athletes and bouts in his data. He then uses this average correlation to calculate the average underpayment (measured as a percentage of event revenue) for athletes within the Bout class, and applies that underpayment to an estimate of total event revenue during the Class Period. But nowhere does Dr. Singer examine whether any particular athlete's compensation was lower when his measures of foreclosure were higher.

280. The limitations in Dr. Singer's approach to measuring damages from his regression model can be seen in Exhibit 33. In this exhibit, I use the same regression models that Dr. Singer uses to calculate the damages in Tables 10 and 11 in his report, but I restrict the calculations to the named Plaintiffs.^{404, 405} For example, Cung Le participated in four Zuffa bouts during the Class period. When I use Dr. Singer's regression model to predict Mr. Le's compensation in a but-for world where Zuffa's foreclosure share was 30 percent, that model predicts that Mr. Le

⁴⁰⁴ In Table 10, Dr. Singer uses a regression model that excludes Strikeforce bouts that occurred prior to Zuffa's acquisition of Strikeforce. In Table 11, he includes these Strikeforce bouts. Both regressions use Dr. Singer's Ranked measure of foreclosure.

⁴⁰⁵ To perform this calculation, I first use the regression models to predict the share of revenue the named plaintiffs would have received if foreclosure was 30 percent. Using this but-for revenue share, I am able to calculate the named plaintiffs' but-for compensation. Damages are then equal to this but-for compensation minus the named plaintiffs' actual compensation.

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would have received an additional \$610,132 in compensation. It is important to note, however, that I am only able to calculate these damages by using the average correlation between athletes' compensation and the foreclosure share across all of the athletes and bouts in Dr. Singer's regression data. Nowhere in his report does Dr. Singer directly test (or, propose a direct test to determine) whether Mr. Le was paid less when Zuffa's foreclosure share was high.

281. Additional comparisons demonstrate further that Dr. Singer's regression model generates nonsensical measures of damages. Perhaps the two most famous MMA athletes in the world are Conor McGregor and Ronda Rousey. During the Class Period, both athletes were number one ranked MMA athletes who became famous throughout the world. Ronda Rousey was compensated \$13 million for participation in seven UFC bouts of which she won six. Conor McGregor was compensated nearly \$20 million for participation in nine UFC bouts of which he won eight. Despite these athletes' similarities, Dr. Singer's regression model generates wildly different predictions about how each would fare in a but-for world. Dr. Singer's regression model predicts that in a but-for world, Ronda Rousey's compensation would increase by nearly \$2.5 million (*i.e.*, Ronda Rousey suffered damages of \$2.5 million). The same regression model predicts that Conor McGregor's compensation will decrease in a but-for world by more than \$5 million (*i.e.*, Conor McGregor suffers negative damages).⁴⁰⁶ In other words, Dr. Singer's regression model implies that arguably one of the two most famous MMA athletes in the world (Rousey) is severely harmed by the Challenged Conduct but the other (McGregor) benefits greatly. This result does not make sense. If taken seriously, it also implies that athletes in the proposed class were not commonly impacted or uniformly harmed by the Challenged Conduct. Exhibit 34 lists all additional Zuffa athletes who suffer negative damages in a but-for world using the same regression model Dr. Singer uses to generate \$1.6 billion in total harm.

282. If I repeat for each of the athletes and bouts in Dr. Singer's regression data, total damages equal \$701 million excluding pre-acquisition Strikeforce bouts, or \$1,174 million including pre-

⁴⁰⁶ These damage calculations rely on the regression model that includes pre-acquisition Strikeforce bouts and uses Dr. Singer's Ranked measure of foreclosure as an explanatory variable. When I exclude Strikeforce bouts from the regression, Conor McGregor's negative damages remain approximately the same (they decrease to approximately negative \$6.5 million) but Ronda Rousey's fall to negative \$2 million. This further illustrates the unreliability of Dr. Singer's regression model.

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acquisition Strikeforce bouts. These totals are lower than the figures reported in Tables 10 and 11 of the Singer Report (\$894 million and \$1,598 million, respectively). This is because Dr. Singer uses his regression model to measure damages incurred by athletes in all Zuffa bouts, even if those bouts are not included in his regression data. More specifically, Dr. Singer uses his regression model to calculate the average share of Zuffa's total event revenues that athletes would be paid in a but-for world in which Zuffa's foreclosure share were lower. He then applies this revenue share to Zuffa's total event revenues (\$3,215 million, reported at the bottom Dr. Singer's Tables 10 and 11), even though Zuffa earned more than one quarter of its Class period revenues (\$923 million) from events that are not included in Dr. Singer's regression data.

283. However, Dr. Singer has provided no evidence that the athletes participating in bouts missing from his regression data were paid less (as a fraction of event revenue) when his measure of foreclosure was high. As a result, he has no basis to assume that athletes participating in those bouts were impacted by Zuffa's conduct. The named plaintiffs listed in Exhibit 33 provides two examples of this flaw. For example, Nathan Quarry did not actually participate in any Zuffa bouts during the class period. Therefore, Dr. Singer's regression model can provide no evidence that Mr. Quarry suffered damages.

C. REVENUE SHARE IS THE WRONG MEASURE OF ATHLETE COMPENSATION

284. A third fundamental problem with the damages calculations is that they are based on an athlete's compensation as a fraction of event revenue. As I explained above, this share is a meaningless measure of competitively determined employee compensation. As already discussed in Section VI, there is no basis in economics for measuring compensation as a fraction of revenues to determine whether it is at or below competitive levels. Compensation should be measured simply as dollars paid. And even if there were a basis for using revenue share to measure compensation, I have shown that when I correct errors Dr. Singer made in estimating his regression model, there is not a negative relationship between Zuffa's foreclosure share and the fraction of revenues paid to athletes.

285. Consequently, there is no theoretical or empirical foundation for the damages computed by Dr. Singer.

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1. There Are No Damages Using the Proper Measure of Athlete Compensation

286. Although Dr. Singer's damage estimates are fatally flawed because they all are based on athlete revenue share, one can adapt the methodology using the correct measure of athlete compensation, which is simply the level of compensation. This requires comparing the compensation actually paid by Zuffa with the compensation that would be paid by an MMA promoter that does not exercise monopsony power, which, following Dr. Singer, I will refer to as a competitive benchmark. Using any of the natural candidates for a competitive benchmark and following Dr. Singer's methodology, there are no estimated damages.

287. There are three natural candidates for a competitive benchmark: the compensation paid by other MMA promoters, which corresponds to the Bellator benchmark used by Dr. Singer, the compensation paid by Zuffa when it had a smaller share of the MMA market, which corresponds to the lower foreclosure share used by Dr. Singer in his regression benchmarks, and the compensation paid to Strikeforce athletes who were then incorporated into UFC following the 2011 acquisition, which corresponds to Dr. Singer's Strikeforce benchmark. In each case these competitive benchmarks indicate that Zuffa was paying more than competitive compensation to its athletes, which in turn means that there were no damages from Zuffa's use of the Challenged Conduct.

288. Starting with compensation paid by other MMA promoters, as discussed earlier, the evidence cited by Dr. Singer in his own report indicates that UFC pays more than other promoters: "UFC... has the revenue model providing ability to pay athletes the most in the market, by far."⁴⁰⁷ Thus according to the competitive benchmark of compensation paid by competing promoters, Zuffa does not exercise monopsony power. Turning to the second competitive benchmark, which is the compensation paid by UFC when it had a smaller share of the MMA marketplace, the analysis discussed in Section VIII shows that the compensation paid by Zuffa has increased since 2005. Section IX discusses the third competitive benchmark, which is compensation paid by athletes who transitioned from Strikeforce to UFC, and shows that compensation for those athletes was higher when they became affiliated with UFC. Again, each

⁴⁰⁷ WME-ZUFFA-00013978, quoted in SINGER REPORT at ¶159.

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of these benchmarks indicates that there were no damages from the alleged exercise of monopsony power.

D. THERE IS NO BASIS FOR DR. SINGER'S CALCULATION OF DAMAGES FOR THE IDENTITY CLASS

289. In Sections VII.C and XVI.D, I explained why Dr. Singer's approach to measuring damages for the Identity Class are not valid.

290. To measure damages to Identity Subgroup One, Dr. Singer uses his regression of athlete compensation as a share of revenue on his measure of foreclosure to measure damages. Since Dr. Singer's regression model does generate a negative correlation between compensation and Dr. Singer's measure of foreclosure after I correct his model, Dr. Singer has no basis to assign damages to Subgroup One.

291. With respect to Subgroup Two, I explained that Dr. Singer offers no economic analysis or evidence that in a but-for world Zuffa would have offered its athletes the Identity payments that were under consideration. These recommended payments were actually made,⁴⁰⁸ and Dr. Singer only speculates, without any supporting economic analysis, that additional payments of equal value would have taken place but for the Challenged Conduct. Further, the recommended payments are not a method grounded in any economics for estimating payments in the but-for world and instead are an arbitrary number plugged in for damages. Dr. Singer also does not compare the arbitrary figures to what athletes actually received. Therefore, Dr. Singer has no basis to use these proposed payments to measure damages to Subgroup Two.

XVIII. OTHER ARGUMENTS DR. SINGER MAKES ARE UNSUPPORTED BY THE EVIDENCE

A. LOAS ARE USED AT THE REQUEST OF ATHLETES, NOT AS A BASIS TO HIDE COMPENSATION

292. In his report, Dr. Singer alleges that LOAs permit Zuffa to withhold total MMA athlete compensation numbers from the public.⁴⁰⁹ Dr. Singer does not explain why the LOAs would have an exclusionary effect on competitors nor does he demonstrate such an effect. As a matter

⁴⁰⁸ ZFL-0899290

⁴⁰⁹ SINGER REPORT at ¶ 33.

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of antitrust economics, nonpublic information, which is common in many industries, is not indicative of an anticompetitive effect. My salary, like that of all professors in private universities, is not public knowledge. LOAs are often created to assist athletes, not Zuffa. The factual record shows that it is often the MMA athletes or their managers who independently request that Zuffa provide certain portions of their compensation via LOAs and Dr. Singer cites no facts to the contrary.⁴¹⁰ For example, Glenn Robinson, representative for former UFC athlete Anthony “Rumble” Johnson requested an LOA and said that “Anthony does not want people to know what he makes because he always has people asking him for something.”⁴¹¹ UFC athlete Ronda Rousey, who has signed an LOA,⁴¹² said, regarding her compensation: “It’s also very, very private. I don’t want people to know how much money I’m making.”⁴¹³ Dr. Singer’s report is devoid of any testimony or quotations from MMA athletes. The factual record shows that LOAs are often used to assist MMA athletes, not Zuffa, with structuring their compensation.

B. COUNTER-PROGRAMMING IS PROCOMPETITIVE AND INCREASES THE OPTIONS FOR CONSUMERS

293. Dr. Singer criticizes Zuffa for counter-programming – that is, the scheduling of UFC events on the same days as other MMA promoters’ events.⁴¹⁴ In short, Dr. Singer criticizes Zuffa for competing. Head-to-head competition forces firms to increase quality and reduce prices in order to attract customers from rivals. This sort of behavior is what the antitrust laws were designed to protect. Dr. Singer infers anti-competitive effects of counter-programming, without recognizing the potential pro-competitive benefits of this action.

⁴¹⁰ Deposition of Tracy Long (January 26, 2017) at 112-113 (explaining that sometimes a request for LOAs came from athletes and that they “were requesting all the money not [be] in the promotional agreement”); ZFL-0448819 (Assistant General Counsel Michael Mersch communicating a request to Tracy Long that Anthony “Rumble” Johnson’s manager, Glenn Robinson, was requesting an LOA for Johnson).

⁴¹¹ ZFL-0448811 at -8813.

⁴¹² ZFL-0464891 (Rousey Letter of Agreement).

⁴¹³ Mike Bohn, “UFC champ Ronda Rousey: I don’t want people to know how much money I make,” *MMAJunkie* (Oct. 13, 2014), available at <http://mmajunkie.com/2014/10/ufc-champ-ronda-rousey-i-dont-want-people-to-know-how-much-money-i-make>.

⁴¹⁴ SINGER REPORT at ¶¶ 52-58.

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294. Testimony from several witnesses supports the conclusion that counter-programming provides consumers with more choice as to which MMA program to watch.⁴¹⁵ In addition, putting two MMA events on in the same time slot “actually provides more opportunity for more events and more product out there for the fans. You’re giving more opportunities, more consumer choice.”⁴¹⁶

295. It can also increase the number of consumers with access to MMA content. This is particularly true where one promotion offers a Pay-Per-View event and another promoter offers an event on cable or network TV, since some consumers cannot afford a pay option. Counter-programming can also increase the audience for each promoter because they are complements, not substitutes: “when you put content on two different channels around the same time, people flip back and forth, and that's good for both properties.”⁴¹⁷ Further, in the age of digital video recorders (DVRs), which spans the class period,⁴¹⁸ consumers can choose to watch two MMA events that were scheduled for the same time slot.⁴¹⁹ DVRs are ubiquitous and have dramatically changed consumers’ consumption of broadcast television, as reflected in the change of the Nielsen ratings to include DVR viewing statistics.⁴²⁰

296. Other MMA promoters and networks have also counter-programmed against Zuffa events.⁴²¹ The UFC also faces counterprogramming from other sports entertainment programs,

⁴¹⁵ EPSTEIN TR. at 297 (“there’s a lot of strong arguments that this creates an MMA night where people can watch a ton of MMA in one night.”)

⁴¹⁶ HENDRICK TR. at 162.

⁴¹⁷ EPSTEIN TR. at 297.

⁴¹⁸ TiVo, History (accessed Oct. 24, 2017), <https://www.tivo.com/history> (the first DVR to ever exist, TiVo, shipped by March 31, 1999).

⁴¹⁹ HENDRICK TR. at 161 (“That's actually also not true with the DVR world these days. What Nielsen ratings look at is not just who is watching live, they look at, I'm sure you're aware, DVR numbers. So if you're trying to say that one person can only watch one channel at one time, that's just not the way the world is anymore.”)

⁴²⁰ Brian Stelter, “As DVRs Shift TV Habits, Ratings Calculations Follow,” *New York Times* (Oct. 6, 2013), available at <http://www.nytimes.com/2013/10/07/business/media/dvrs-shift-tv-habits-and-ratings.html> (explaining a change in the Nielsen ratings to include DVR time-shifted programming and that “[o]n-demand viewing behaviors, which have been reshaping television since the first TiVo DVR was shipped in 1999, are becoming more pronounced with each passing year.”)

⁴²¹ EPSTEIN ACQUISITIONS TR. at 203-204 (discussing counter-programming by Spike TV of taped UFC programming); KNAPP TR. AT 153; “Spike TV Continues UFC Counter Attack Tactics with ‘Unleashed: Diego

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for all of its events.⁴²² In the view of UFC executive Lawrence Epstein:

“[C]ounterprogramming to me means what we do every single day, trying to compete for the attention of the consumer that's being bombarded with everything from competing television products in the sports category to entertainment to movies to video games to YouTube videos, and the list goes on and on.”⁴²³ Former UFC Chief Legal Officer Kirk Hendrick testified, when asked to define counterprogramming, “I said I'd heard of it before in entertainment programming. Providing more programming for the viewing public, I've heard of that.”⁴²⁴

297. In addition to ignoring the pro-competitive effects of counter-programming, Dr. Singer speculates, without any factual support, about Zuffa's nefarious intent to counter-program, which has been contradicted by the factual record. Dr. Singer implies that the UFC counter-programmed a Bellator event in 2014 that would take place at the Mohegan Sun in Connecticut with a UFC event at Foxwoods, 10 miles away.⁴²⁵ Fact witness testimony makes clear, however, that it was only after the UFC had made a commitment to Foxwoods to do a live event that the UFC learned about Bellator's Mohegan Sun event.⁴²⁶ Once Zuffa learned about the event, it sought to compete with Bellator and make sure that its event pricing was competitive and that it priced the event with the goal of “sell[ing] the last ticket one minute before you start the event versus selling out in a minute which is leaving money on the table, so to say.”⁴²⁷

Sanchez,” MMA Weekly (February 7, 2012) *available at* <http://www.mmaweekly.com/spike-tv-continues-ufc-counter-attack-tactics-with-unleashed-diego-sanchez>. (Spike TV (which is owned by Bellator parent Viacom) counterprogramming against the UFC).

⁴²² EPSTEIN TR. at 295-97 (explaining that the UFC “compete[s] for the attention of the consumer,” including “competing against the NBA”).

⁴²³ EPSTEIN TR. at 298; HENDRICK TR. at 160 (explaining that having two MMA events air in the same time slot may result in more overall viewership for MMA events and providing the example “where Spike TV showed a replay of a UFC event on the same night that UFC showed a live UFC event on Fox, and there ended up being a lot of people watching that event. So it might have ended up being more people watched both Spike TV and Fox that night”).

⁴²⁴ HENDRICK TR. at 156.

⁴²⁵ SINGER REPORT at ¶ 54.

⁴²⁶ FERTITTA TR. at 280-81 (explaining that Zuffa “had agreed with [Foxwoods], which is a casino in Connecticut, Indian casino, to do a live event . . . [a]nd subsequent to my making the commitment, we learned that Bellator was going the same night right down the road at Mohegan Sun . . . we found out about Bellator after we had committed, so there wasn't much we could do about it”).

⁴²⁷ Deposition of John Mulkey (April 19, 2017) at 231-232.

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298. Dr. Singer admits that counter-programming does not have the effect of foreclosing the market for MMA athletes in his model, and that, even with counter-programming by Zuffa, in the absence of 30-month athlete contracts, his model would show no foreclosure.⁴²⁸ As a result, Dr. Singer's model does not (and cannot) show any anti-competitive effects from counter-programming.

C. ZUFFA DID NOT USE LITIGATION AS A TOOL TO STIFLE COMPETITION

299. Dr. Singer claims that Zuffa used the threat of litigation to impair competitors.⁴²⁹ In support of that claim, Dr. Singer discusses litigation in which Zuffa sued MMA promoter IFL when IFL hired two of Zuffa's former employees and improperly received strategic, confidential, and trade secret information from those former employees.⁴³⁰

300. Dr. Singer's description of the facts in the IFL litigation are contrary to the record evidence, particularly the settlement that IFL and Zuffa reached. As part of that settlement, IFL agreed to pay Zuffa \$75,000, and IFL and the two former employees specifically agreed not to use over two dozen categories of documents and information.⁴³¹ The former employees, both of whom copied or removed significant amounts of confidential and proprietary information and documents from Zuffa's offices before they left Zuffa's employ,⁴³² also agreed to refrain from providing certain services relating to IFL for one year.⁴³³ Additionally, Dr. Singer omitted from his analysis the record evidence that a third party submitted a declaration that supported Zuffa's allegations against IFL.⁴³⁴

⁴²⁸ SINGER TR. at 254-255.

⁴²⁹ SINGER REPORT at ¶ 59.

⁴³⁰ LEPLAINTIFFS-0002247.

⁴³¹ ZFL-2677499 at 7501-7502.

⁴³² LEPLAINTIFFS-0002247 at 2275-76.

⁴³³ ZFL-2677499 at 7501.

⁴³⁴ LEPLAINTIFFS-0002247 at 2279-280.

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D. NON-COMPETE AGREEMENTS DID NOT AFFECT ZUFFA'S COMPETITION IN THE MARKETPLACE

301. Dr. Singer claims that Zuffa improperly entered into non-compete agreements with other MMA promoters and that such agreements are horizontal agreements in restraint of trade.⁴³⁵ In reaching that conclusion, Dr. Singer cites to § 2.2 of the FTC's Antitrust Guidelines for Collaborations Among Competitors. In my opinion, Dr. Singer's reliance on these guidelines in these circumstances is misplaced, and I conclude that Zuffa's non-compete agreements did not affect competition.

302. First, Dr. Singer cites to non-compete agreements between Zuffa and Messrs. Palazzo and Goodman, the former owners of the WFA.⁴³⁶ At the time of the WFA acquisition, both Palazzo and Goodman had decided to exit the MMA business.⁴³⁷ Additionally, the non-compete agreements were negotiated instruments that were part and parcel of the acquisition itself.⁴³⁸ In other words, the non-competes were not a collaboration among competitors since Zuffa and Palazzo and Goodman were no longer competitors once Zuffa acquired the WFA.

303. Second, it is well-accepted that non-compete agreements are common in acquisitions to protect the purchased assets.⁴³⁹ It would not make any business sense for Zuffa to acquire WFA, which had few assets, yet allow the former owners of WFA to put up a new shingle the next day with a competing promotion that had all of WFA's strategic information and business relationships. Indeed, with regard to Palazzo and Goodman, \$1 million of the \$3.2 million purchase price of the WFA was specifically paid for the non-competes, and was part of the negotiated deal with the former owners.⁴⁴⁰ Zuffa entered into similar agreements with the former

⁴³⁵ SINGER REPORT at ¶¶ 40, 62-63.

⁴³⁶ SINGER REPORT at n. 105.

⁴³⁷ EPSTEIN ACQUISITIONS TR. at 71-72.

⁴³⁸ ZFL-1238033 at 8060 (non-competition agreements listed as part of the December 6, 2006 Asset Purchase Agreement); ZFL-1646497 (Palazzo Non-Competition Agreement stating that WFA, Palazzo, and Goodman "have entered into an Asset Purchase Agreement" with Zuffa); ZUF-00377712 (Goodman Non-Competition Agreement).

⁴³⁹ Federal Trade Commission, "Market Division or Customer Allocation", <https://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws/dealings-competitors/market-division-or>.

⁴⁴⁰ ZFL-1240584 at 0590.

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owners of the WEC.⁴⁴¹ Notably, Reed Harris, one of the former WEC owners, entered into a non-compete with Zuffa in 2006, yet remains a Zuffa employee to this day.⁴⁴²

304. Dr. Singer cites to a similar agreement with the owner of Pride (Nobuyuki Sakakibara).⁴⁴³ Like the WFA, Zuffa acquired Pride, which meant that it was no longer a competitor of Zuffa at the time of the acquisition. More importantly, the Pride acquisition was intended as a way for Zuffa to enter into the Asian MMA market.⁴⁴⁴ Without a non-compete with Sakakibara, nothing would prevent him from using his local connections (including his alleged connections to Japanese organized crime) and Pride trade secrets to immediately start a new promotion in Japan, thereby undercutting Zuffa's \$47 million purchase of Pride and intended investment in the Japanese MMA market.⁴⁴⁵ In fact, the non-compete agreement was ancillary to the acquisition and valued at \$9 million.⁴⁴⁶

305. Dr. Singer also cites to a 2010 settlement agreement between Zuffa, HDNet, and Mark Cuban that included a 4-year non-compete agreement.⁴⁴⁷ However, as AXS TV (formerly HDNet) executive Andrew Simon testified, HDNet did not consider itself to be a competitor of UFC, at least as of a year before the settlement agreement was signed, because HDNet was "not promoting [its] own fights" and was "a broadcaster at that point."⁴⁴⁸ Simon explained that, after promoting two events in 2007, HDNet decided it would not become a full-time promoter of MMA events because it was "looking to broadcast more events than [it] would ever produce."⁴⁴⁹ HDNet was broadcasting fights from a number of different promoters and producing an MMA

⁴⁴¹ EPSTEIN ACQUISITIONS TR. at 48-49.

⁴⁴² ZFL-1240584 at 0589; EPSTEIN ACQUISITIONS TR. at 31, 49.

⁴⁴³ SINGER REPORT at ¶ 43.

⁴⁴⁴ EPSTEIN ACQUISITIONS TR. at 88-92.

⁴⁴⁵ ZFL-0864885 at 4887; EPSTEIN ACQUISITIONS TR. at 18-19.

⁴⁴⁶ ZFL-0000064 at 079.

⁴⁴⁷ SINGER REPORT at ¶ 62.

⁴⁴⁸ Deposition of Andrew Simon (July 19, 2017) [hereinafter SIMON TR.] at 281-282; 289.

⁴⁴⁹ SIMON TR. at 317.

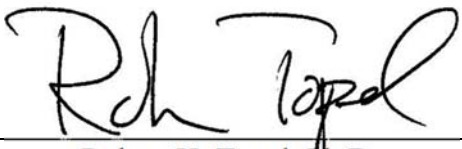
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news show, *Inside MMA*.⁴⁵⁰ Simon agreed that HDNet made “the decision between being a broadcaster and a promoter and ... chose to be a broadcaster.”⁴⁵¹ Simon also agreed that, once HDNet became a broadcaster, they saw themselves as a “complimentary [*sic*] organization” to MMA promoters, including UFC.⁴⁵²

306. Finally, Dr. Singer fails to note that some of the people subject to the limited non-compete agreements designed to protect Zuffa’s investments have now entered the market again as competitors, including Scott Coker⁴⁵³ and Nobuyuki Sakakibara.⁴⁵⁴

XIX. CONCLUSION

307. This report contains a statement of my opinions regarding Plaintiffs’ allegations in this matter and the expert opinions offered by Dr. Singer. The report also describes the bases for my opinions, the data and other information that I considered in forming them, and the analyses and exhibits that I prepared to support these opinions.



Robert H. Topel, Ph.D.
October 27, 2017

⁴⁵⁰ SIMON TR. at 289-290.

⁴⁵¹ SIMON TR. at 318.

⁴⁵² SIMON TR. at 321.

⁴⁵³ SIMON TR. at 145-146; 164.

⁴⁵⁴ Mark Bergmann, “Former PRIDE CEO Sakakibara plans to return to US market with new RIZIN promotion,” *Bloody Elbow* (May 25, 2016) available at <https://www.bloodyelbow.com/2016/5/25/11766304/former-pride-ceo-sakakibara-plans-return-to-us-market-with-new-rizin>.

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APPENDIX A: AN ECONOMIC MODEL OF COMPARATIVE ADVANTAGE IN PROMOTING FIGHTS

308. The regression estimates Dr. Singer reports in Section III.D.1 of his report show a negative relationship between his measure of purported foreclosure—the share of MMA athletes under contract with Zuffa—and an athlete’s pay as a share of event revenue. In other words he finds that as Zuffa’s share of MMA athletes under contract increased, athletes’ pay as a fraction of event revenue declined. Dr. Singer interprets this negative relationship as evidence of anticompetitive impact—*i.e.*, that Zuffa exercised monopsony power in the market for MMA athletes, reducing their pay. Dr. Singer also bases some of his calculations of harm to athletes on this negative relationship.

309. Let $y(i, t)$ denote the pay of athlete i as a share of event revenue at date t . Let $Z(t)$ denote the share of MMA athletes under contract with Zuffa at date t . The theoretical foundation for Dr. Singer’s regression is his assertion that a negative relationship between $y(i, t)$ and $Z(t)$ demonstrates the exercise of monopsony power. As a matter of basic economics, this assertion is simply false. A negative relationship between $y(i, t)$ and $Z(t)$ is an implication of successful competition on the merits by Zuffa, even if it is impossible for Zuffa to obtain or exercise monopsony (or monopoly) power. Further, even assuming that, for the sake of argument, Zuffa were to obtain and exercise monopsony power, economic theory does not predict that athlete compensation as a share of event revenue declines as monopsony power rises. These facts mean that Dr. Singer’s regression evidence is meaningless for the purposes demonstrating or measuring anticompetitive harm—he would “find” his negative relationship even if such harm could not (and did not) occur.

310. Zuffa claims that its success is the result of competing on the merits, producing a superior product and attracting the best talent. So assume that Zuffa became progressively better than its competition at promoting fights, advertising, and developing athletes’ skills. If the labor market were perfectly competitive, economic theory would predict that athlete compensation would remain constant, Zuffa’s share of all MMA athletes would rise, and Zuffa’s revenue per event would increase. Therefore, athletes’ compensation as a share of event revenue, $y(i, t)$, would decrease while the percentage of all MMA athletes that are under contract to Zuffa, $Z(t)$, would rise. This is precisely what Dr. Singer’s regression finds, yet it has nothing to do with

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monopsony power—it is the outcome of Zuffa’s procompetitive success. This would happen even if the market were perfectly competitive, and even if no promoter had market power in the Input or Output Markets.

311. To see this, consider an economic model with two firms where neither firm has market power in the product market or in the labor market. Let L_1 be the number of athletes employed by Zuffa and L_2 be the number of athletes employed by the competitor promoter. Let a be the relative quality of Zuffa athletes, which Zuffa can increase by incurring a cost according to the cost function $c(a)$. In other words, Zuffa is better than its competitor at making its athletes more effective revenue-generators, but is only able to do so by incurring some cost.

312. Assume that labor supply is perfectly elastic, which implies that the labor market is competitive and neither Zuffa nor its competitor is a monopsonist. Further, assume that demand for MMA events and products are perfectly elastic, which implies that the product market is perfectly competitive and neither Zuffa nor its competitor has market power in the product market.

313. The two firms will earn profits according to the following two equations:

$$\text{Profit}_1 = pF(aL_1) - wL_1 - c(a)$$

$$\text{Profit}_2 = pF(L_2) - wL_2$$

where $F(\cdot)$ is a production function that describes how the two firms generate output based on their inputs.

314. This economic model makes three predictions as Zuffa gets better at promoting fights and developing athletes. First, Dr. Singer’s measured foreclosure share, $Z(t)$, increases. Second, athletes’ wages, w , are unchanged. Third, athletes’ pay as a share of Zuffa’s revenue decreases. The intuition is that as Zuffa gets better at promoting fights and developing athletes, it produces a better product and generates more revenue. When this happens, athletes’ pay does not increase precisely because the labor market is competitive; in a competitive labor market, a worker’s wage is determined by his second-best opportunity and that does not change as Zuffa becomes better at promoting events. Finally, the increased revenue goes to Zuffa because Zuffa has the

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scarce skills that generate the revenue (in this case the skills to increase a in a way that its competitor cannot).⁴⁵⁵

315. The upshot of this economic model is that Dr. Singer's finding of a negative relationship between compensation as a share of revenue ($y(i, t)$) and the share of MMA athletes under contract with Zuffa ($Z(t)$) is exactly what would occur if Zuffa's success is the result of competing on the merits, producing a superior product because Zuffa has a comparative advantage in producing good fights and athletes. This relationship will occur even if Zuffa has no market power in either the product or labor market. Therefore, the regression Dr. Singer presents in Section III.D.1 is completely uninformative regarding whether Zuffa has exercised market power in either the product or labor market, or whether MMA athletes were harmed by the Challenged Conduct. Furthermore, this simple model demonstrates that this negative relationship would result from actions by Zuffa that benefit customers—creating a better product that customers value.

⁴⁵⁵ Assume for example that the production and cost functions both have a constant elasticity, so that $F_1 = \frac{(aL_1)^{1-b}}{(1-b)}$; $F_2 = \frac{L_2^{1-b}}{(1-b)}$; $c(a) = \frac{k}{1+e} a^{1+e}$. As k declines, Zuffa becomes better at promoting events and developing high-quality athletes, and chooses to do so. Dr. Singer's measure of the foreclosed share would be $Z = \frac{aL_1}{aL_1 + L_2} = \frac{a^{1+b}}{1+a^{1+b}}$, which increases as a increases (*i.e.*, Dr. Singer's measured foreclosure share increases as Zuffa becomes better at promoting fights). The wage is unaffected by a change in k or a change in a because the labor market is competitive. And, the ratio of athlete pay to Zuffa's revenue is equal to $\frac{w}{Revenue_1} = \left(\frac{Z}{1-Z}\right)^{b-1} \frac{w^{1/(b-2)}}{p}$, which declines as the foreclosure share Z increases because $b < 1$.

APPENDIX B: CURRICULUM VITAE

Robert H. Topel

CURRICULUM VITAE

August 2017

CURRENT POSITIONS

Isidore Brown and Gladys J. Brown Distinguished Service Professor of Economics,
Booth School of Business, The University of Chicago
Director, George J. Stigler Center for the Study of the Economy and the State
Co-Director, Energy Policy Institute at Chicago (EPIC)
Research Associate, National Bureau of Economic Research

EDUCATION

B.A. (with High Honors), University of California, Santa Barbara, 1974
Ph.D., University of California, Los Angeles, 1980

FIELDS OF SPECIALIZATION

Microeconomics, Labor Economics, Industrial Organization, Health Economics,
Economic Policy, Energy Economics, National Security Economics

PREVIOUS ACADEMIC POSITIONS

Professor of Economics, Graduate School of Business, University of Chicago, 1986-93
Kirby Distinguished Visiting Professor of Economics, Texas A&M University, 2006
Professor of Economics, Department of Economics, University of California, Los Angeles, 1986
Associate Professor of Economics, Department of Economics, University of California, Los Angeles, 1985-86
Associate Professor of Economics, Graduate School of Business, University of Chicago, 1983-85
Assistant Professor of Economics, Department of Economics, University of Chicago, 1980-83

OTHER AFFILIATIONS

Research Associate, National Bureau of Economic Research, 1984-present
Senior Fellow, the Milken Institute, 1999-present
Faculty Member, MacLean Center for Clinical Medical Ethics, The University of Chicago
Member, National Petroleum Council Taskforce on Transportation Fuels Supply and Infrastructure, 2010-2012
Fellow, Center for the Study of Poverty and Inequality, Stanford University, 2006-present

Member, Brookings Panel on Economic Activity, various years
Visiting Scholar, Board of Governors of the Federal Reserve, 1990
Research Associate, Economics Research Center, NORC, 1980—1990
Consulting Economist, The Rand Corporation, 1982—1989
Research Associate, Center for the Study of the Economy and the State, 1980—present
Faculty Research Fellow, National Bureau of Economic Research, 1981-83
Research Economist, Unicon Corporation, 1981-88
Consultant, U.S. Department of Labor, 1985-90
Partner, Chicago Partners LLC 1994-2008
Principal & Managing Director, Navigant Economics, 2008-2013
Board of Directors, Ingalls Hospitals and Ingalls Health Service, 2000-2012
Director, WGA Evans Scholars Foundation, 2011-present
Senior Consultant, Charles River Associates, 2013-present

EDITORIAL POSITIONS

Editor, *Journal of Political Economy*, 1993-2003
Board of Editors, *American Economic Review*, 1992-94
Associate Editor, *Journal of Labor Economics*, 1982-92
Editorial Board, *International Journal of the Economics of Business*, 1993-present
Member of the Advisory Board, ERN Labor Journals, 1998-present

HONORS & AWARDS

Kenneth J. Arrow Award, International Health Economics Association, 2007
Kirby Distinguished Visiting Professor, Texas A&M University, 2006
Research America Eugene Garfield Prize for Medical and Health Research, 2005
Elected Fellow, Society of Labor Economists, 2004
Elected Member, Conference on Research in Income and Wealth
Elected Founding Member, National Academy of Social Insurance
William Ladany Research Scholar, The University of Chicago, 1989-91
William Fishman Research Scholar, The University of Chicago, 1986-87
Smith Richardson Dissertation Fellowship in Political Economy, 1978-79
Foundation for Research in Economics and Education Fellowships, 1975-79
Chancellor's Intern Fellow, University of California, Los Angeles, 1975-79
University Fellow, Northwestern University, 1975
General Electric Dissertation Fellowship, 1978

TEACHING EXPERIENCE

Graduate Economic Theory I, II, III
Law, Economics and Business
Competitive Strategy
Advanced Topics in Labor Economics
Advanced Topics in Microeconomics
Managing the Workplace
Industrial Organization/Antitrust
Price Theory

OTHER PROFESSIONAL ACTIVITIES

Thompson Lecture (Keynote Address), Midwest Economic Association, 2000
Nominating Committee, American Economic Association, 1996, 1997
Program Committee, American Economic Association, 2006-2007
Organizer, Universities-NBER Research Conference: "Labor Markets in the 1990s," Cambridge, December 1989
Program Chair, Labor Economics, Econometric Society Meetings, December 1989
National Science Foundation Review Panel in Economics, 1998, 1999
Inaugural Keynote Lecture, Missouri Economics Conference, University of Missouri, 2001
Pihl Lecturer, Wayne State University, November, 2004
Keynote Address, Federal Reserve Bank of Cleveland Conference on Education and Economic Development, November, 2004
Kirby Lecturer, Texas A&M University, 2006
Huggins Lecturer, Department of Surgery Huggins Conference, The University of Chicago, May, 2007
Keynote Address, Conference Board of Canada Conference on Medical Research, Montreal, January 2009
Keynote Address, Council on Competitiveness Conference on Energy Policy, Argonne National Laboratory, May 2009
Keynote Address, The University of Chicago/RFF/University of Illinois Conference on *Energy Policy and the Economy*, Washington, D.C., January 2010
Keynote Address, Humana Health Economics Forum, Santa Fe Institute, 2011
Keynote Address, Toyota Sustainability Conference, La Jolla, 2011
Keynote Address, Conference on Health Policy, Arizona State University, 2013

UNIVERSITY SERVICE

Director, Undergraduate Program in Economics, 1980-83
Chairman, Graduate School of Business Curriculum Review, 1990-91
Committee on Graduate Education, 1992-94
Committee on Undergraduate Education, 1993-94
Council of the University Senate, 1992-94, 1995-97, 1999-2002, 2004-07, 2010-13
Committee of the Council of the University Senate, 2000-02, 2006-07
Chairman, Council of the University Senate Committee to Review and Interpret the University Statutes, 2012-13
Graduate School of Business Policy Committee, 1995-97, 1999-2001
Member, Presidential Search Committee, 1999-2000
Board of Directors, The University of Chicago Laboratory Schools, 1986-92, 1998-2007
Chairman, Director Search Committee, The University of Chicago Laboratory Schools, 2002-2003
Area Coordinator, PhD Program in Economics, 2002-2008
Director, George J. Stigler Center, 2007-2015
Director, The University of Chicago Energy Initiative, 2008-2010
Co-Director, Energy Policy Institute at Chicago, 2010-present

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Articles and Monographs:

“Layoffs, Inventories, and the Demand for Labor,” Ph.D. Dissertation, University of California, Los Angeles, December 1980.

“Unemployment Insurance: Survey and Extensions” (with F. Welch), *Economica* **47** (August 1980): 351-79.

“Inventory Adjustments, Industry Behavior, and the Business Cycle” (with A. Stockman), presented at the NBER Conference on Inventories and Business Cycles, March 1980.

“Inventories, Layoffs, and the Short-Run Demand for Labor,” *American Economic Review* (September 1982): 769-87.

“Experience Rating of Unemployment Insurance and the Incidence of Unemployment,” *Journal of Law and Economics* (April 1984): 61-90.

“On Layoffs and Unemployment Insurance,” *American Economic Review* (September 1983): 541-59.

“Equilibrium Earnings, Turnover, and Unemployment: New Evidence,” *Journal of Labor Economics* (October 1984): 500-22.

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Exhibit 1 - Venues in North America Used by Zuffa in 2016

Venue	Location	Event	Date	Venue Used by Zuffa in 2005-2015
Air Canada Centre	Toronto, Ontario, Canada	UFC 206 - Holloway vs. Pettis	12/10/2016	Yes
Amalie Arena	Tampa, Florida, United States	UFC on Fox 19 - Teixeira vs. Evans	4/16/2016	No
Consol Energy Center	Pittsburgh, Pennsylvania, United States	UFC Fight Night 83 - Cerrone vs. Oliveira	2/21/2016	Yes
Denny Sanford Premier Center	Sioux Falls, South Dakota, United States	UFC Fight Night 91 - McDonald vs. Lineker	7/13/2016	No
Golden 1 Center	Sacramento, California, United States	UFC on Fox 22 - VanZant vs. Waterson	12/17/2016	No
MGM Grand Garden Arena	Las Vegas, Nevada, United States	UFC 195 - Lawler vs. Condit	1/02/2016	Yes
		UFC Fight Night 82 - Hendricks vs. Thompson	2/06/2016	Yes
		UFC 196 - McGregor vs. Diaz	3/05/2016	Yes
		UFC 197 - Jones vs. St. Preux	4/23/2016	Yes
		UFC Fight Night 90 - Dos Anjos vs. Alvarez	7/07/2016	Yes
		UFC - The Ultimate Fighter 23 Finale	7/08/2016	Yes
Madison Square Garden	New York, New York, United States	UFC 205 - Alvarez vs. McGregor	11/12/2016	No
Mandalay Bay Events Center	Las Vegas, Nevada, United States	UFC Fight Night 88 - Almeida vs. Garbrandt	5/29/2016	Yes
Mexico City Arena	Mexico City, Federal District, Mexico	UFC Fight Night 98 - Dos Anjos vs. Ferguson	11/05/2016	Yes
Moda Center	Portland, Oregon, United States	UFC Fight Night 96 - Lineker vs. Dodson	10/01/2016	Yes
Palms Casino Resort	Las Vegas, Nevada, United States	UFC - The Ultimate Fighter 24 Finale	12/03/2016	Yes
Philips Arena	Atlanta, Georgia, United States	UFC 201 - Lawler vs. Woodley	7/30/2016	Yes
Prudential Center	Newark, New Jersey, United States	UFC on Fox 18 - Johnson vs. Bader	1/30/2016	Yes
Quicken Loans Arena	Cleveland, Ohio, United States	UFC 203 - Miocic vs. Overeem	9/10/2016	No
Rogers Arena	Vancouver, British Columbia, Canada	UFC on Fox 21 - Maia vs. Condit	8/27/2016	Yes
State Farm Arena	Hidalgo, Texas, United States	UFC Fight Night 94 - Poirier vs. Johnson	9/17/2016	No
T-Mobile Arena	Las Vegas, Nevada, United States	UFC 200 - Tate vs. Nunes	7/09/2016	No
		UFC 202 - Diaz vs. McGregor 2	8/20/2016	No
		UFC 207 - Nunes vs. Rousey	12/30/2016	No
TD Garden	Boston, Massachusetts, United States	UFC Fight Night 81 - Dillashaw vs. Cruz	1/17/2016	Yes
TD Place Arena	Ottawa, Ontario, Canada	UFC Fight Night 89 - MacDonald vs. Thompson	6/18/2016	No
The Forum	Inglewood, California, United States	UFC 199 - Rockhold vs. Bisping 2	6/04/2016	No
Times Union Center	Albany, New York, United States	UFC Fight Night 102 - Lewis vs. Abdurakhimov	12/09/2016	No
United Center	Chicago, Illinois, United States	UFC on Fox 20 - Holm vs. Shevchenko	7/23/2016	Yes
Vivint Smart Home Arena	Salt Lake City, Utah, United States	UFC Fight Night 92 - Rodriguez vs. Caceres	8/06/2016	No

Source:

Singer Backup ("Sherdog Denom for Market Shares.dta")

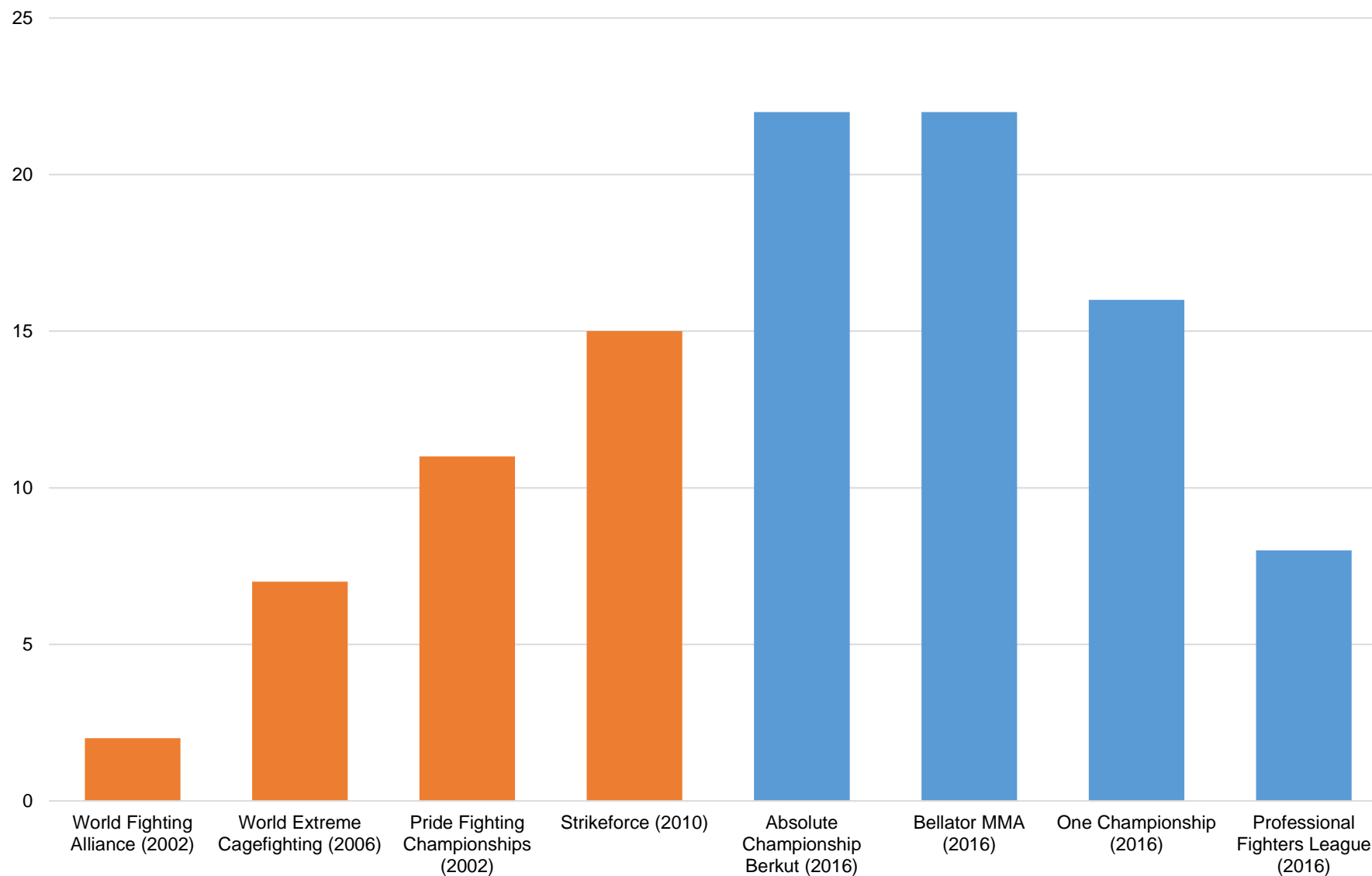
Exhibit 2 - Examples of MMA Promoters That Have Used Venues in North America Booked by Zuffa in 2005-2016

Promoter	Description	Link to Sherdog.com Organization Page	Count of North American Events (2005-2016)
King of the Cage	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/King-of-the-Cage-1	398
Bellator MMA	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/Bellator-MMA-1960	163
Rage in the Cage	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/Rage-in-the-Cage-18	111
Extreme Challenge	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/Extreme-Challenge-17	97
Tuff-N-Uff	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/TuffNUff-972	75
King of the Cage Canada	Canada-based MMA Promotion	http://www.sherdog.com/organizations/King-of-the-Cage-Canada-1414	69
Xtreme Fighting Organization	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/Xtreme-Fighting-Organization-421	59
Cage Fury Fighting Championships	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/Cage-Fury-Fighting-Championships-813	58
Reality Fighting	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/Reality-Fighting-611	48
Resurrection Fighting Alliance	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/Resurrection-Fighting-Alliance-4265	46
Titan Fighting Championship	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/Titan-Fighting-Championship-740	41
Cage Fighting Xtreme	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/Cage-Fighting-Xtreme-569	41
International Fighting Championship	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/International-Fighting-Championship-15	41
Real Fighting Championships	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/Real-Fighting-Championships-671	38
World Series of Fighting	U.S.-based MMA Promotion	http://www.sherdog.com/organizations/World-Series-of-Fighting-5449	36

Source:

Singer Backup ("Sherdog Denom for Market Shares.dta")

Exhibit 3 - Annual Event Count for Zuffa Acquired Promoters and Selected Rival Promoters



Note: Includes total event count for 2016 for selected rival promoters, and total event count for the peak pre-acquisition year for Zuffa acquired promoters.

Source: Singer Backup ("All Sherdog Scrape.dta")

Exhibit 4 - Presence of Clauses in Zuffa PAR Agreements (2001-2015)

Clause	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
Exclusion	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Ancillary Identity	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Champion	80%	50%	0%	37%	32%	86%	98%	100%	99%	100%	96%	100%	100%	100%	100%	94%
Tolling Retirement	60%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tolling Injury	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Exclusive Negotiation	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	52%	0%	0%	84%	100%	67%
Right to Match	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total Contracts	10	4	26	30	71	78	84	209	204	214	272	248	266	346	49	2,111

Note:

There are 2,136 contracts in Dr. Singer's contract data "Cleaned UFC Fighter Contract Data.xlsx". In generating his "Merged 4 Database Data.dta" file, Dr. Singer drops 11 contracts that are for the same fighter and effective on the same date, 4 contracts that are for the same fighter and effective in the same month, and 10 contracts with no associated compensation, leaving 2,111 contracts. While Dr. Singer keeps some or all of these contracts in his data when summarizing contract provisions in Table A1, and contract durations in Table 1, the sample of 2,111 contracts I use is consistent with Dr. Singer's other analysis of the contracts, including his foreclosure shares.

Source:

Singer Backup ("Merged 4 Database Data.dta")

Exhibit 5 - Presence of Clauses in Zuffa and Bellator PAR Agreements

Clause	Zuffa		Bellator
	2001-2009	2010-2015	2010-2017
Exclusion	100.0%	100.0%	100.0%
Ancillary Identity	99.9%	99.9%	100.0%
Champion	84.2%	99.1%	96.3%
Tolling Retirement	99.4%	100.0%	100.0%
Tolling Injury	100.0%	100.0%	100.0%
Exclusive Negotiation	99.6%	50.0%	100.0%
Right to Match	99.9%	99.9%	100.0%
Total Contracts	716	1,395	82

Notes:

[1] Bellator data was compiled from a sample of 82 Bellator PAR agreements that were signed by both parties.

[2] Bellator agreement SBPCL00003868 is not included because most of the contract is unreadable.

[3] Effective Dates for Bellator Agreements have been redacted. The agreements produced were a sample from January 1, 2010 to June 2017.

Sources:

Singer Backup ("Merged 4 Database Data.dta"); Bellator Promotional Agreements

Exhibit 6 - Comparison of Clause Language in Zuffa and Bellator PAR Agreements

Clause	2010-2015		2010-2017	
	Example Zuffa Clause Language	% of Zuffa Contracts	Example Bellator Clause Language	% of Bellator Contracts
Exclusion	During the Term, ZUFFA shall have the exclusive right to promote all of Fighter's bouts and Fighter shall not participate in or render his services as a professional fighter or in any other capacity to any other mixed martial art, martial art, boxing, professional wrestling, or any other fighting competition or exhibition, except as otherwise expressly permitted by this Agreement.	100.0%	During the Term or any extensions thereof, Promoter shall have the exclusive right to promote all of Fighter's bouts and Fighter shall not participate in or render his services as a professional fighter or in any other capacity to any MMA, boxing, martial arts, professional wrestling, or other combat sport competition or exhibition, except as otherwise expressly permitted by Promoter in writing.	100.0%
Ancillary Identity	Fighter hereby grants to ZUFFA the exclusive worldwide right to use, display, disseminate, edit, reproduce, print, publish and make any other use of the name, sobriquet, image, likeness, voice, persona, signature, and biographical material of Fighter and all persons associated with Fighter (collectively, the "Identity"), in any medium in connection with advertising, marketing, exploiting and promoting the UFC brand and each Bout and the exploitation of all rights pertaining thereto as provided herein and all rights to each Bout electronic and other (the "Ancillary Rights" and, collectively with the Promotional Rights, the "Rights").	99.9%	Subject to the terms and conditions set forth below, FIGHTER hereby grants to PROMOTER the exclusive, unrestricted, and irrevocable worldwide rights to the following ancillary rights ("Ancillary Rights")...The perpetual right to exploit and use to the fullest extent possible any and all content data, and information, and any and all property rights and intellectual property rights prepared, conceived, developed, manifested in tangible or intangible form, or created by and through this Agreement with FIGHTER as well as any and all other property rights associated with PROMOTER, its events or affiliates, which shall include the unrestricted and perpetual right to fully exploit, use, profit, disseminate, display, reproduce, print, publish, edit, and make any other uses of FIGHTER's names, images, likenesses, sobriquets, voices personas, signatures, biographical materials, photographs and/or any and all information relating thereto ("Identity") including all persons associated or affiliated with FIGHTER such as FIGHTER's trainers and seconds, for the purpose of advertising and/or promoting and/or exploiting PROMOTER's or its licensees' events and brand...	100.0%
Champion	If, at the expiration of the Term, Fighter is then a UFC champion, the Term shall automatically be extended for the period commencing on the Termination Date and ending on the earlier of (i) one (1) year from the Termination Date; or (ii) the date on which Fighter has participated in three (3) bouts promoted by ZUFFA, regardless of weight class or title, following the Termination Date ("Extension Term"). Any reference to the Term herein shall be deemed to include a reference to the Extension Term, where applicable.	99.1%	Additionally, if at any time during the Term, FIGHTER is declared by PROMOTER the champion of his weight class, the Term shall be automatically extended for a period commencing on the Termination Date and ending on the later of (i) twelve (12) months from the Termination Date, or (ii) the date in which FIGHTER has participated in three (3) bouts promoted by PROMOTER following the Termination Date ("Extension Term"). Any reference to the Term herein shall be deemed to include a reference to the Extension Term, where applicable.	96.3%
Tolling Retirement	If at any time during the Term, FIGHTER decides to retire from mixed martial arts or other professional fighting competition, then ZUFFA may, at its election, (i) suspend the Term for the period of such retirement; (ii) declare that ZUFFA has satisfied its obligation to promote the Bout hereunder, without any compensation due to FIGHTER herefor; or (iii) elect to provide FIGHTER with notice of an Acceleration.	100.0%	If at any time during the Term, FIGHTER decides to retire, PROMOTER may, at its election, suspend the Term for the full and entire period of such retirement, regardless of its length.	100.0%
Tolling Injury	If at any time during the Term, FIGHTER claims to be injured or permanently or partially disabled [and unable or claims to be unable to perform], ZUFFA may, at its election, for each such injury or disability claimed by FIGHTER, (i) extend the Term for the period of such injury or disability or for a period of six months, whichever is longer; (ii) declare that ZUFFA has satisfied its obligation to promote the Bout hereunder, without any compensation due to FIGHTER for the Bout; or (iii) elect to provide FIGHTER with notice of an Acceleration.	100.0%	Should any Bout be postponed or unable to be scheduled due to injury, disability, illness, retirement, incarceration, loss of travel authorization or inability to obtain same, suspension by a Commission, positive drug test, unwillingness to compete, or any other similar reason, of either Fighter or Fighter's opponent, the obligation of Promoter relating to the bouts, timing of the bouts, required offers of bouts and the Term of this Agreement shall automatically be extended by the period of time necessary to reschedule and hold the postponed Bout (if a Bout was scheduled) or, if no bout was scheduled, the time necessary for Fighter to be able to participate in a bout to be thereafter scheduled and held.	100.0%
Exclusive Negotiation	Fighter agrees to negotiate exclusively with ZUFFA regarding the extension or renewal of the Term for a period of ninety (90) days following the expiration of the Term ("Exclusive Negotiation Period") If ZUFFA and Fighter fail to reach agreement upon the terms and conditions of an extension of the Term, within the Exclusive Negotiation Period, Fighter may negotiate with any other promotional entity, subject to ZUFFA's right to match the terms of any agreement offered to Fighter by such other promotional entity (each, an "Offer") prior to the acceptance of the Offer by Fighter, as set forth below.	50.0%	Upon expiration of the Term, FIGHTER agrees to negotiate exclusively and in good faith with PROMOTER regarding the extension or renewal of the Term for a period of ninety (90) days following the expiration of the Term, including any extensions thereof.	100.0%

Exhibit 6 - Comparison of Clause Language in Zuffa and Bellator PAR Agreements

2010-2015		2010-2017	
Clause	Example Zuffa Clause Language	% of Zuffa Contracts	Example Bellator Clause Language
Right to Match	ZUFFA shall have the option to match the financial terms of any offer for one (1) year following the expiration of the Agreement (the "Matching Period"). Fighter shall not accept any offer or enter into a contract or agreement with any other promotional entity during the Matching Period without complying with this section. Prior to acceptance of any Offer made during the Matching Period, Fighter shall first deliver to ZUFFA a written notice of all material financial terms and conditions of the offer, including, but not limited to, the identity of the promotional entity making the offer. Such notice shall constitute an exclusive, irrevocable offer (the "ZUFFA Offer") to contract with ZUFFA on the same financial terms and conditions. ZUFFA shall have fifteen (15) business days following receipt of the ZUFFA Offer in which to accept the ZUFFA Offer. If ZUFFA does not accept the ZUFFA Offer, Fighter may then accept the offer without modification during the ten (10) business day period following expiration of the ZUFFA Offer (the "Contract Period"). If the offer is modified in any material way, such modification shall give rise to another ZUFFA Offer on such modified terms and conditions and ZUFFA shall have the option to match the terms of the offer, [as modified].	99.9%	For a period of eighteen (18) months following the expiration of his ninety (90) day exclusive negotiation period, however, PROMOTER shall retain the exclusive right to match the material terms of any agreement offered to FIGHTER by any other promotional entity. During this eighteen (18) month period, FIGHTER shall thus be under the strict obligation, without exception, to provide PROMOTER with written notice of any such offer from another promotional entity within five (5) days of fighter's receiving said offer. If this Agreement is terminated for any reason, FIGHTER is thereafter permitted negotiate with other promotional entities. For a period of eighteen (18) months following the termination of this Agreement, however, PROMOTER shall retain the exclusive right to match the material terms of any agreement offered to FIGHTER by any other promotional entity. During this eighteen (18) month period, FIGHTER shall therefore be under the strict obligation, without exception, to provide PROMOTER with written notice of any such offer from another promotional entity within five (5) days of FIGHTER's receiving said offer...Once written notice as set forth in Section (D) above is received by PROMOTER, PROMOTER shall have fourteen (14) business days after receipt to either accept said offer by matching the offer's material terms or reject said offer. During these fourteen (14) business days, FIGHTER is strictly prohibited from accepting any offer from any other promotional entity besides PROMOTER.
Total Contracts		1,395	82

Notes:

- [1] Bellator data was compiled from a sample of 82 Bellator PAR agreements that were signed by both parties.
- [2] Bellator agreement SBPCL00003868 is not included because most of the contract is unreadable.
- [3] Effective Dates for Bellator Agreements have been redacted. The agreements produced were a sample from January 1, 2010 to June, 2017.
- [4] The clause language in this table is the most commonly used language for that clause across the PAR agreements for both Zuffa and Bellator.

Sources:

Singer Backup ("Merged 4 Database Data.dta", "Contract Data Key.xlsx"); Bellator Promotional Agreements

Exhibit 7 - Bellator Single-Bout Agreement Summary (2010-2017)

Contract Duration	Median	Mean
Term (Bouts)	1	1
Future Bout Option (Months)	0	3
Future Bout Option (Bouts)	0	0.51
Base Purse (\$)	\$1,750	\$2,169
Winner Bonus (\$)	\$1,500	\$2,043
Total Contracts	43	43

Notes:

[1] Data were compiled from a sample of 43 Bellator single-bout agreements signed by both parties, where the athlete was not already under another agreement, and the athlete was not under option.

[2] Bout agreements SBPCL00002540 and SBPCL00006177 were dropped because they were not readable.

[3] If an agreement is missing a clause, the variable assumes the value of zero (0).

[4] Effective Dates for Bellator Agreements have been redacted. The agreements produced were a sample from January 1, 2010 to June 2017.

Source:

Bellator Single-Bout Contracts

Exhibit 8 - Clause Language in Bellator Single-Bout Agreements (2010-2017)

Clause	% of Contracts	Example Clause Language
Promotional Rights	83.7%	Promoter shall have the right to use and otherwise exploit, throughout the world and in perpetuity, in connection with or for the purpose of promoting, marketing, presenting and exploiting the Event hereunder, Fighter's name (including nicknames or pseudonyms), likeness, images, voice and biographical information (the "Promotion Rights"), in any and all media now known or hereafter existing. Promoter may exploit and market the Promotion Rights in any manner, in its sole discretion and for its own account. Fighter's sole compensation with respect to the Promotion Rights and other rights granted hereunder consists of the compensation payable hereunder.
Tolling (Injury)	74.4%	If the Bout does not take place due to Fighter's unwillingness, Fighter's inability to compete, or any other reason whatsoever, Bellator shall have the right to reschedule the Bout or terminate this Agreement at its option without any Compensation obligations whatsoever.
Tolling (Injury) - Future Option	23.3%	The option term (the "Future Period"), with respect to Future Bouts (each, a "Future Bout" and collectively, the "Future Bouts") will run twelve (12) months from the date of the Bout unless Fighter is injured or otherwise unable to compete in which case the Future Period will be extended for a period of time equal to the length of injury or inability to compete.
Promotional Exclusivity Prior to Bout	83.7%	It is agreed that after signing this Agreement, Fighter will not enter into an agreement for nor compete in another Contest (any martial arts contest of any nature) prior to the one contracted for herein, without the prior written consent of Promoter and that doing so will cause harm to the Promoter, which is not compensable in monetary damages. If Fighter so contracts and/or competes, Promoter will have the right and with said right shall have Fighter's approval to immediately obtain from the applicable court of Equity an injunction prohibiting Fighter from participating in the prior Contest scheduled to occur before Promoter's scheduled bout for Fighter. By signing this Agreement, Fighter agrees that Promoter shall have such rights and that Fighter understands and agrees that Promoter shall be entitled to injunctive relief prohibiting Fighter from participating in such a Contest prior to Fighter's Contest referenced herein.
Total Contracts	43	

Notes:

[1] Data were compiled from a sample of 43 Bellator single-bout agreements signed by both parties, where the athlete was not already under of another agreement, and the athlete was not under option.

[2] Bout agreements SBPCL00002540 and SBPCL00006177 were dropped because they were not readable.

[3] Effective Dates for Bellator Agreements have been redacted. The agreements produced were a sample from January 1, 2010 to June 2017.

Source:

Bellator Single-Bout Contracts

Exhibit 9 - Contracts with Tolling Extension in Dr. Singer's Data

Contract Effective Year	Number of Contracts	Number of Contracts with Tolling Extension	Percent of Contracts with Tolling Extension	Average Length of Tolling Extension (Months)	
				Contracts with Tolling Extension	All Contracts
2001	10	1	10%	20.3	2.03
2002	4	1	25%	3.2	0.79
2003	26	0	0%		0.00
2004	30	0	0%		0.00
2005	71	6	8%	5.4	0.46
2006	78	9	12%	2.3	0.26
2007	84	9	11%	6.3	0.67
2008	209	8	4%	6.2	0.24
2009	204	15	7%	3.8	0.28
2010	214	18	8%	7.0	0.59
2011	267	18	7%	5.0	0.34
2012	180	14	8%	6.5	0.51
2013	16	2	13%	5.5	0.69
2010-2013	677	52	8%	6.1	0.47
All Contracts	1,393	101	7%	5.5	0.40

Note:

[1] Dr. Singer only calculates tolling extensions for bouts that occurred after the end of a contract but before November 2015. I therefore limit the analysis to contracts with end dates in or before November 2014 to avoid potential bias from the truncated sample.

Source:

Singer Backup ("Merged 4 Database Data.dta")

Exhibit 10 - Comparison of Zuffa and Bellator PAR Agreement Durations

	Zuffa						Bellator	
	2001-2009		2010-2015		2001-2015		2010-2017	
	Median	Mean	Median	Mean	Median	Mean	Median	Mean
Contract Months	18	15.4	20	21.0	20	19.1	24	23.1
Option Period	0	2.8	0	2.3	0	2.4	N/A	N/A
Exclusive Negotiation Period	2	1.9	0	1.2	2	1.5	3	2.9
Right to Match Period	12	10.5	12	12.0	12	11.5	12	13.2
Overall Duration	32	30.5	34	36.5	32	34.5	45	39.3
Total Contracts	716	716	1,395	1,395	2,111	2,111	82	82

Notes:

[1] Bellator data were compiled from a sample of 82 Bellator PAR agreements that were signed by both parties.

[2] The Exclusive Negotiation Period was given in days, months were calculated by dividing by 30.

[3] Bellator agreement SBPCL00003868 is not included because most of the contract is unreadable.

[4] Following Dr. Singer's methodology, if a Bellator agreement is missing a clause the variable assumes the value zero (0).

[5] For Bellator PAR agreements, a single 6-bout agreement had no Contract Months specified and 10 agreements included a Right-to-Match provision, but specified no defined time period.

[6] For Zuffa PAR agreements, one 2-bout agreement had no Contract Months specified, so it assumes the value zero (0), as per Singer's methodology.

Sources:

Singer Backup ("Merged 4 Database Data.dta"); Bellator Promotional Agreements

Exhibit 11 - Comparison of To-Show Bout Purse for Early Re-Signed Contracts

Bout	2010-2015			2005-2015		
	Number of Contracts	To-Show Amount		Number of Contracts	To-Show Amount	
		Median	Mean		Median	Mean
Second-to-last Bout Fought on Prior Contract	323	\$14,418	\$20,734	396	\$13,841	\$21,720
Last Bout Fought on Prior Contract	323	\$15,735	\$22,122	396	\$15,317	\$23,760
First Bout Fought on New Re-Signed Contract	323	\$18,755	\$26,820	396	\$18,827	\$29,465
% Change (2nd Last to Last Bout on Prior Contract)		9.1%	6.7%		10.7%	9.4%
% Change (Last Bout on Prior Contract to 1st Bout on New Contract)		19.2%	21.2%		22.9%	24.0%

Notes:

- [1] "Re-signed" contracts include 3-, 4-, 5- or 6-bout contracts on which only 2, 3, 4 or 5 bouts were completed, respectively.
- [2] Excludes "Re-signed" contracts where the athlete did not re-sign a new contract within 12 months of their last bout on the prior contract.
- [3] Excludes "Re-signed" contracts with effective date later than the contract end date of the previous contract (as defined by Dr. Singer).
- [4] Year defined based on the effective date of the re-signed contract.
- [5] To-show compensation levels are adjusted for inflation using the CPI-U index and are expressed in 2016 dollars.

Sources:

Singer backup ("Merged 4 Database Data.dta"); Bureau of Labor Statistics Annual Detailed CPI Reports

Exhibit 12 - Summary of Errors in Dr. Singer's Impact Regression Model

Description of Errors in Dr. Singer's Impact Regression:	Steps Taken to Address Dr. Singer's Error:	Relevance to Damages and Class Certification:
Dr. Singer measures athlete compensation as a share of Zuffa revenue.	<ol style="list-style-type: none"> 1. Measure Zuffa athletes' compensation with what they are actually paid instead of their share of Zuffa revenues. 2. Re-estimate Dr. Singer's regression model with athletes' actual compensation as the dependent variable. 	<u>No Zuffa athletes suffered damages</u> since there is no correlation between Zuffa athletes' actual compensation and Dr. Singer's measure of foreclosure.
Dr. Singer uses Strikeforce bouts that occurred before Zuffa acquired Strikeforce as a benchmark for Zuffa athletes' compensation	<ol style="list-style-type: none"> 1. Use a well-established econometric test (a Chow Test) to test the validity of Strikeforce bouts as a benchmark. 2. Since Dr. Singer's regression model fails the Chow test, remove the pre-acquisition Strikeforce bouts from Dr. Singer's regression model. 	<u>No Zuffa athletes suffered damages</u> since there is no correlation between Zuffa athletes' compensation as a share of revenue and two of Dr. Singer's three measures of foreclosure.
Dr. Singer weights Zuffa athletes' by Zuffa's revenues when calculating foreclosure.	<ol style="list-style-type: none"> 1. Demonstrate that weighted foreclosure shares causes a <i>mechanical</i> correlation between foreclosure and compensation as a share of revenue. 2. Replace Dr. Singer's weighted foreclosure shares with foreclosure shares that weight all athletes equally. 3. Replace Dr. Singer's weighted foreclosure shares with unweighted foreclosure shares calculated separately for high and low ranked athletes. 	<u>No Zuffa athletes suffered damages</u> since there is no correlation between Zuffa athletes' compensation as a share of revenue and the corrected measures of foreclosure.

Exhibit 13 - Dr. Singer's Regression Model Using Compensation Levels

Dependent Variable: Log(Compensation per Bout)

	Tracked (1)	Ranked (2)	Headliner (3)	Control for Event Revenues		
				Tracked (4)	Ranked (5)	Headliner (6)
Foreclosure Share - Tracked	0.13043 (0.127)			0.04900 (0.123)		
Foreclosure Share - Ranked		-0.03957 (0.156)			-0.16979 (0.151)	
Foreclosure Share - Headliner			0.12340 (0.124)			0.04566 (0.121)
Log (Event Revenue)				0.07988** (0.014)	0.08409** (0.014)	0.07998** (0.014)
Observations	7,154	7,154	7,154	7,154	7,154	7,154

Notes:

[1] The dependent variable is the log of compensation per bout. Compensation levels and Event Revenues are adjusted for inflation using the CPI-U.

[2] Regression model includes the same explanatory variables as in Dr. Singer's Table 6.

[3] Robust standard errors are in parentheses. ** p<0.01, * p<0.05

Sources:

Singer Backup ("Regression Data.dta"); Bureau of Labor Statistics Annual Detailed CPI Reports

Exhibit 14 - UFC, Strikeforce, and WEC Compensation per Bout by Year

Year	UFC	Strikeforce	WEC
2005	\$29,860		
2006	\$140,277		
2007	\$190,433		
2008	\$140,637	\$11,032	\$16,999
2009	\$145,016	\$34,018	\$14,439
2010	\$158,192	\$34,851	\$20,318
2011	\$115,734	\$33,673	
2012	\$91,971	\$36,092	
2013	\$109,331	\$54,347	
2014	\$62,545		
2015	\$103,947		
2016	\$138,522		

Notes:

[1] Compensation per Bout is adjusted for inflation using the CPI-U.

Sources:

Singer Backup ("Regression Data.dta"); Bureau of Labor Statistics Annual Detailed CPI Reports

Exhibit 15 -Dr. Singer's Regression Model After Excluding Pre-Acquisition Strikeforce Bouts

Dependent Variable: Compensation Share of Event Revenue

	Singer Revenue Weighted Foreclosure Shares			Unweighted Foreclosure Shares		
	Tracked (1)	Ranked (2)	Headliner (3)	Tracked (4)	Ranked (5)	Headliner (6)
Foreclosure Share - Tracked	-0.02462 (0.013)			0.01093 (0.009)		
Foreclosure Share - Ranked		-0.02377** (0.007)			0.04685 (0.034)	
Foreclosure Share - Headliners			-0.01681 (0.014)			0.01662 (0.010)
Observations	6,942	6,942	6,942	6,942	6,942	6,942

Notes:

[1] Columns 1-3 replicate Dr. Singer's Table 6 after removing 212 bouts that occurred before Zuffa acquired Strikeforce. Columns 4-6 use unweighted foreclosure shares.

[2] Robust standard errors are in parentheses. ** p<0.01, * p<0.05

Source:

Singer Backup ("Regression Data.dta")

Exhibit 16: Dr. Singer's Regression Model with Stratified Foreclosure Shares After Excluding Pre-Acquisition Strikeforce Bouts
Dependent Variable: Compensation Share of Event Revenue

	Tracked (1)	Ranked (2)
Unweighted Foreclosure Share - Athletes Ranked 1-15	0.00844 (0.019)	0.02067 (0.022)
Unweighted Foreclosure Share - Athletes Ranked 16-30	-0.02365 (0.020)	-0.00677 (0.027)
Unweighted Foreclosure Share - Athletes Ranked 31-50	0.03392 (0.018)	0.03484 (0.022)
Unweighted Foreclosure Share - Athletes Ranked 51-100	-0.00109 (0.017)	0.00412 (0.042)
Unweighted Foreclosure Share - Athletes Ranked 100 +	0.00383 (0.011)	-0.04726 (0.085)
Observations	6,942	6,942

Notes:

[1] Regression model includes unweighted foreclosure shares that are calculated separately for athletes ranked between 1 and 15, 16 and 30, 31 and 50, 51 and 100, and higher than 100.

[2] Regressions include all additional explanatory variables in Dr. Singer's Table 6 regression model.

[3] Regression excludes 212 Strikeforce bouts that occurred before Zuffa acquired Strikeforce.

[4] Robust standard errors are in parentheses. ** p<0.01, * p<0.05

Source:

Singer Backup ("Regression Data.dta")

Exhibit 17 - Zuffa Compensation Per Bout Over Time, Controlling for Athlete and Bout Composition
Dependent Variable: Log(Compensation per Bout)

	All Athletes (1)	Athletes Ranked 1-15 (2)	Athletes Ranked 16-30 (3)	Athletes Ranked 31-50 (4)	Athletes Ranked 51-100 (5)	Athletes Ranked 100+ (6)
Year = 2005		0.27576 (0.277)	0.09159 (0.262)	0.24953 (0.245)	-0.04108 (0.281)	
Year = 2006	0.75463** (0.098)	1.29007** (0.251)	0.82597** (0.253)	0.64905* (0.282)	0.45578 (0.251)	0.48095 (0.256)
Year = 2007	1.27069** (0.117)	1.63625** (0.245)	1.40015** (0.269)	1.54454** (0.242)	1.09908** (0.231)	1.00398** (0.265)
Year = 2008	1.58068** (0.122)	1.92782** (0.233)	1.62467** (0.244)	1.70789** (0.252)	1.48264** (0.240)	1.62212** (0.239)
Year = 2009	1.63423** (0.131)	1.91512** (0.238)	1.76444** (0.238)	1.78294** (0.244)	1.67480** (0.235)	1.53654** (0.239)
Year = 2010	1.72126** (0.148)	2.00460** (0.245)	1.87774** (0.244)	1.83620** (0.245)	1.76287** (0.241)	1.66198** (0.238)
Year = 2011	1.68037** (0.169)	1.94248** (0.255)	1.77202** (0.257)	1.80561** (0.251)	1.73676** (0.255)	1.69488** (0.250)
Year = 2012	1.80439** (0.185)	2.00058** (0.267)	1.94328** (0.261)	1.89236** (0.261)	1.89459** (0.256)	1.90844** (0.260)
Year = 2013	1.77462** (0.203)	1.98025** (0.277)	1.82565** (0.274)	1.83288** (0.270)	1.92379** (0.265)	1.93745** (0.266)
Year = 2014	1.86702** (0.220)	1.94108** (0.291)	1.99063** (0.285)	1.99711** (0.280)	2.07044** (0.277)	2.03497** (0.276)
Year = 2015	1.91715** (0.236)	2.07102** (0.298)	2.07710** (0.298)	2.04773** (0.293)	2.00834** (0.288)	2.08587** (0.289)
Year = 2016	1.96366** (0.251)	2.13306** (0.310)	1.94913** (0.311)	2.12369** (0.309)	2.15500** (0.300)	2.16912** (0.296)
2011-2016 Compensation Change	33%	21%	19%	37%	52%	61%

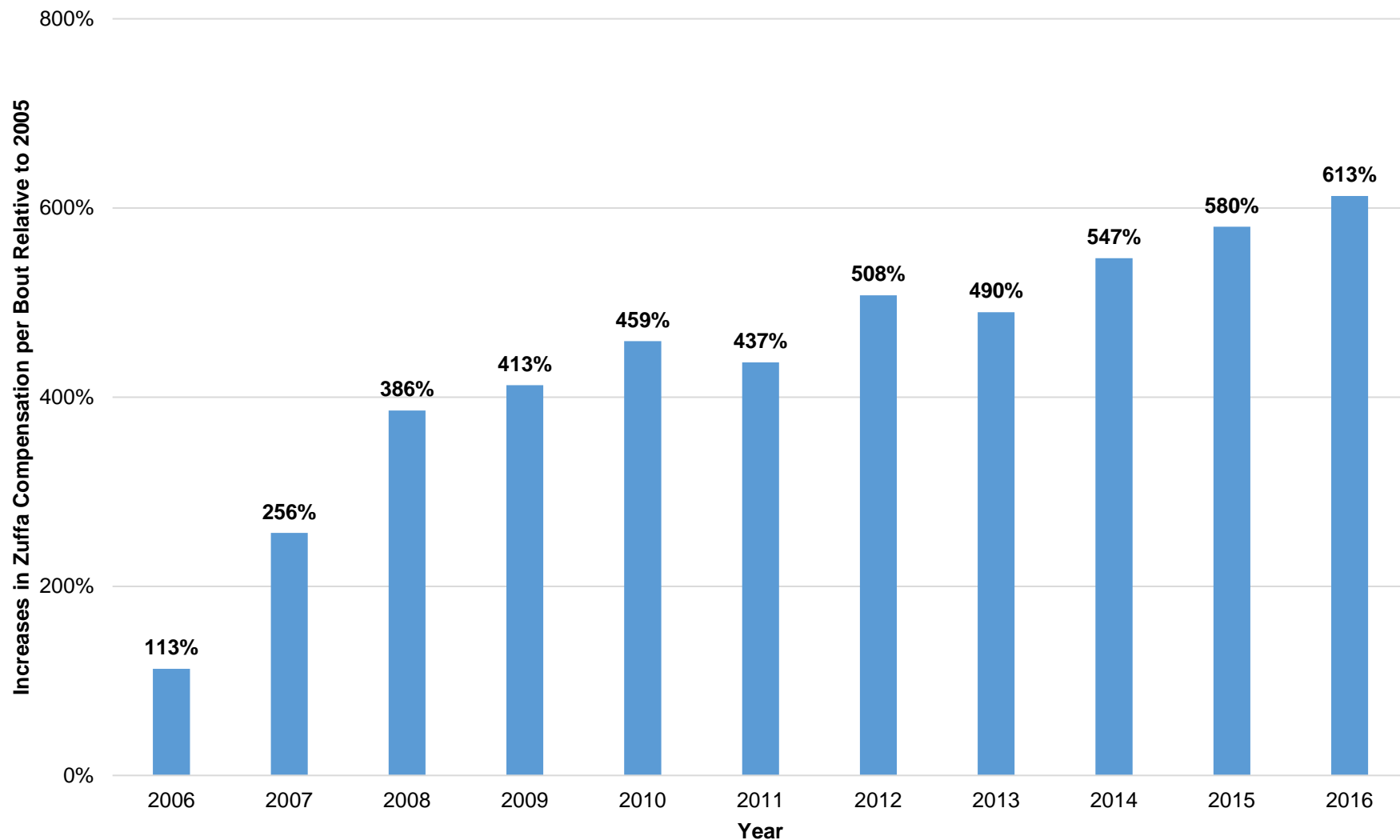
Notes:

- [1] Table reports regressions of logged compensation per Zuffa bout on year fixed effects, athletes' rankings, athletes' record, promoter fixed effects, gender fixed effects, weight division fixed effects, and athlete fixed effects. Regression is restricted to Zuffa bouts.
[2] Column [1] assumes year fixed effects do not vary across bouts within the same year. Columns [2]-[6] report results from one regression that allows the year fixed effects to depend on rankings at the time of the bout.
[3] Compensation levels are adjusted for inflation using CPI-U index.
[4] Standard errors are in parentheses. ** p<0.01, * p<0.05

Sources:

Singer Backup ("Regression Data.dta"); Bureau of Labor Statistics Annual Detailed CPI Reports

Exhibit 18 - Zuffa Compensation per Bout Over Time All Zuffa Athletes



Notes: [1] Chart based on a regression of logged compensation per Zuffa bout on year fixed effects, athletes' rankings, athletes' win-loss record, promoter fixed effects, gender fixed effects, weight division fixed effects, and athlete fixed effects. Regression is restricted to Zuffa bouts. [2] Compensation increases are net of inflation relative to 2005. Inflation is accounted for using the Bureau of Labor Statistics CPI-U index.

Source: Singer Backup ("Regression Data.dta")

Exhibit 19 - Average Compensation and Ranking Composition of Zuffa Bouts by Year

Year	Zuffa Compensation per Bout	Mean Ranking of Athletes in Zuffa Bouts	% of Zuffa Bouts with Athletes Ranked > 100	% of Zuffa Bouts with Unranked Athlete
2005	\$29,860	30.2	10.9%	4.7%
2006	\$140,277	45.3	17.0%	2.6%
2007	\$190,433	52.4	17.9%	1.7%
2008	\$126,005	59.8	21.9%	4.4%
2009	\$106,196	66.3	23.1%	3.2%
2010	\$123,215	61.3	19.9%	2.5%
2011	\$94,989	65.2	26.2%	6.0%
2012	\$85,520	62.2	22.8%	4.3%
2013	\$107,809	54.6	20.1%	3.6%
2014	\$62,545	68.7	29.1%	6.2%
2015	\$103,947	64.6	27.6%	6.4%
2016	\$138,522	56.0	22.1%	5.1%

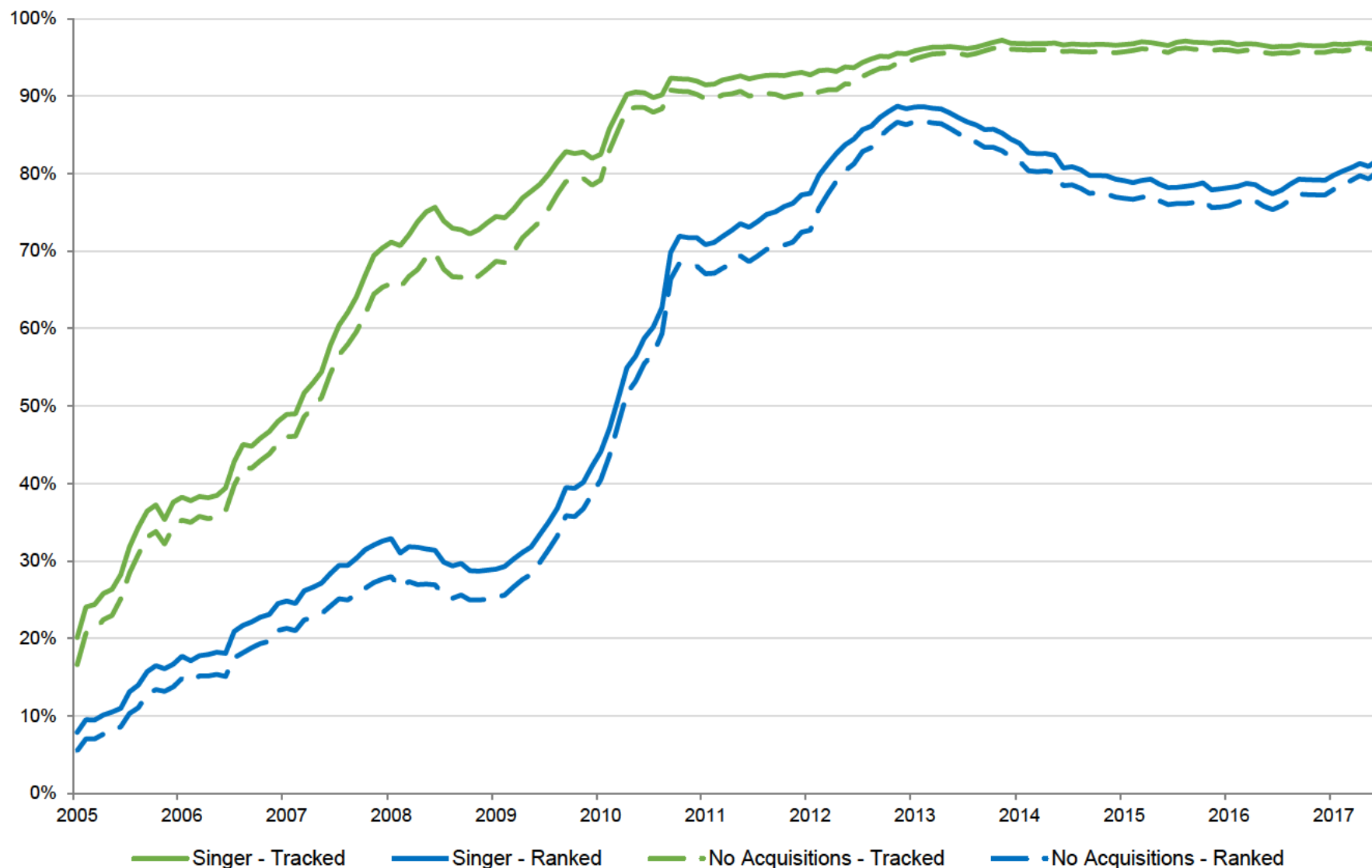
Notes:

[1] Table reports the mean ranking of athletes participating in Zuffa bouts and the percentage of bouts with athletes who are unranked or ranked higher than 100. Means are taken across bouts.

Source:

Singer Backup ("Regression Data.dta")

Exhibit 20 - Foreclosure Shares of Relevant Input Markets Without Zuffa Acquisitions January 2005 - June 2017



Notes: [1] Figure shows Dr. Singer's revenue weighted tracked and ranked input market foreclosure shares with and without athletes who fought for WEC, Strikeforce, WFA, or Pride in the two years prior to the promoters' acquisition by Zuffa. [2] Exhibit reports *R9_t30 versions of foreclosure shares.

Exhibit 21 - Strikeforce Athletes' Compensation Before and After Zuffa Acquisition

	Number of Strikeforce Athletes	Number of Bouts	Compensation per Bout
Strikeforce Bouts Between 2008 and 2010	84	168	\$50,907
Strikeforce Bouts Between 2011 and 2013	57	125	\$68,605
UFC Bouts Between 2008 and 2010	11	24	\$127,892
UFC Bouts Between 2011 and 2013	56	151	\$128,211

Notes:

[1] Bouts with promoters other than UFC and Strikeforce are excluded.

[2] Exhibit includes all athletes who (1) fought for Strikeforce in three years prior to Zuffa acquisition and (2) fought for Zuffa in three years after acquisition.

[3] Compensation levels are adjusted for inflation using the CPI-U index and are expressed in 2016 dollars.

Sources:

Singer Backup ("Regression Data.dta"); Bureau of Labor Statistics Annual Detailed CPI Reports

Exhibit 22 - Strikeforce Athletes' Compensation Before and After Zuffa Acquisition, Controlling for Athletes' Characteristics
Dependent Variable: Log(Compensation per Bout)

	No Controls (1)	Control for Ranking (2)	Control for Ranking and Athlete (3)
Strikeforce Post Acquisition	0.400* (0.160)	0.371** (0.121)	0.465** (0.0830)
UFC Post Acquisition	0.907** (0.152)	0.780** (0.126)	0.979** (0.113)
Athlete Has Ranking		2.045** (0.170)	1.081** (0.231)
Ranking at Time of Bout		-0.00863** (0.000616)	-0.00361** (0.000939)
Constant	9.869** (0.110)	8.513** (0.164)	9.023** (0.202)
Athlete Fixed Effects?	No	No	Yes
Observations	444	444	444

Notes:

[1] Regression includes all athletes who (1) fought for Strikeforce in three years prior to Zuffa acquisition and (2) fought for Zuffa in three years after acquisition.

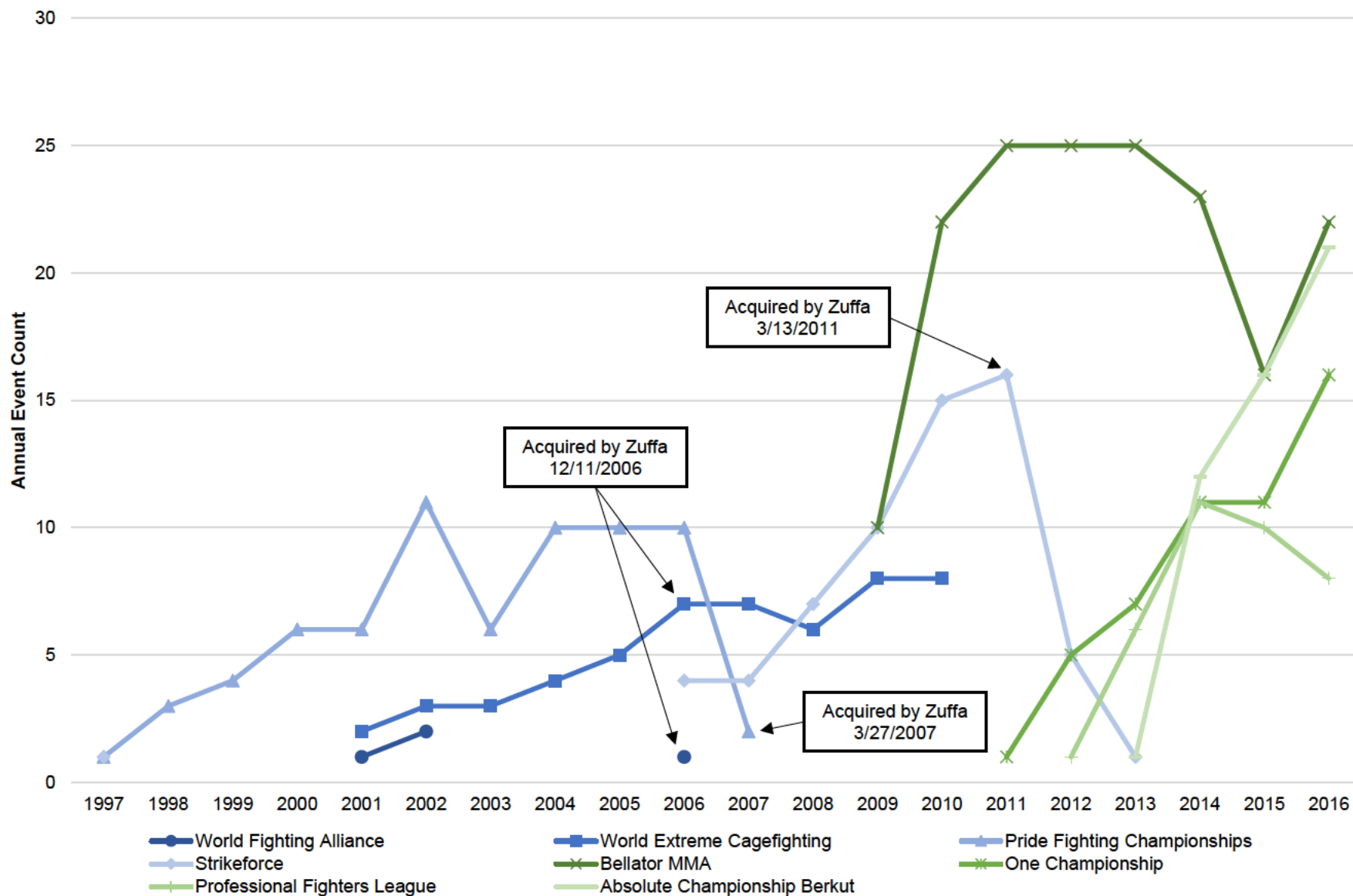
[2] Compensation levels are adjusted for inflation using the CPI-U index and are expressed in 2016 dollars.

[3] Robust standard errors are in parentheses. ** p<0.01, * p<0.05

Sources:

Singer Backup ("Regression Data.dta"); Bureau of Labor Statistics Annual Detailed CPI Reports

Exhibit 23 - Annual Event Count for Zuffa Acquired Promoters and Selected Rival Promoters (1997-2016)



Source: Singer Backup ("All Sherdog Scrape.dta")

Exhibit 24 - Athletes Omitted from Singer's "Tracked" Market

	Unique Promoters	Unique Athletes
Count in Singer's "Tracked" Market	5	2,586
Count in Singer's "Ranked" Market	793	6,821
Count Ranked by FightMatrix but Excluded from Singer's "Tracked" Market	788	5,716
<i>Count with Better Ranking than Zuffa's Worst- Ranked Athlete in the Same Division and Year</i>	<i>724</i>	<i>4,413</i>
<i>Percent with Better Ranking than Zuffa's Worst- Ranked Athlete in the Same Division and Year</i>	<i>92%</i>	<i>77%</i>

Note: Limited to the Class Period (December 16, 2010 through Present)

Source: Singer Backup ("Sherdog Denom for Market Shares.dta")

Exhibit 25 - Starting Rank of Zuffa Athletes that were Headliners (Top 15) by Year

Year in Which Athlete First Became Headliner in Streak	Number of Zuffa Headliner Streaks	% of Zuffa Headline Streaks With Non- Headliner Rank at Beginning of Streak	% of Zuffa Headliner Streaks With Non- Headliner Rank at Time of First Ever Zuffa Bout	Average Rank at Beginning of Zuffa Headliner Streak	Average Rank at Time of First Ever Zuffa Bout
Entire Class Period	211	59%	62%	47.1	51.5
1993	3	0%	0%	4.0	4.0
1994	4	0%	0%	9.8	9.3
1995	5	20%	20%	7.2	9.0
1996	4	0%	25%	8.0	10.0
1997	9	22%	33%	20.2	21.7
1998	10	0%	0%	6.7	6.8
1999	24	17%	29%	9.6	12.9
2000	25	0%	12%	6.5	13.9
2001	21	10%	19%	10.0	14.6
2002	19	21%	37%	12.7	15.8
2003	18	22%	39%	11.2	14.5
2004	14	7%	36%	12.1	19.4
2005	24	17%	46%	12.4	18.5
2006	27	41%	52%	26.3	32.0
2007	42	26%	33%	14.1	14.1
2008	21	62%	67%	33.1	34.0
2009	26	58%	69%	39.6	41.7
2010	20	80%	75%	57.1	52.5
2011	57	46%	51%	44.0	46.7
2012	27	67%	67%	49.3	49.6
2013	31	55%	55%	35.1	52.6
2014	37	59%	65%	41.1	44.4
2015	29	79%	79%	58.4	60.4
2016	20	60%	60%	53.4	53.6
2017	8	63%	75%	74.1	77.4

Notes:

[1] Headliner means ranks strictly smaller in magnitude than 16.

[2] Streaks are identified by sorting by fighter ID and date and then grouping consecutive bouts that appear for the same promoter. So if an athlete has 2 Zuffa bouts, then 3 Bellator bouts, then 4 Zuffa bouts, there would be three separate streaks. Most often streaks are only 1 bout in length. Athletes can have multiple streaks for the same promoter and for different promoters.

[3] If an athlete was unranked at the beginning of their streak or when they fought their first bout with Zuffa, their first ranking from that streak or with Zuffa overall was used. Streaks are grouped into years based on the year in which the athlete first became a Headliner. Some athletes had more than one streak with Zuffa in a single year in which the athlete was a Headliner.

[4] Athletes' best rank across all weight classes in Dr. Singer's Headliner Market were used in this analysis.

[5] Dr. Singer's Headliner definition omits the following weight classes: men's strawweight, women's featherweight, women's flyweight, and women's atomweight classes. See Singer Report at Footnote 268.

[6] Class Period is December 16, 2010 to present.

[7] If an athlete had a 1-bout streak (i.e. he only fought for a promoter once), then that bout is by definition the first bout in the streak, and the athlete would be considered to have a headline ranking at the beginning of the streak. Even if the athlete wasn't a headliner in his or her previous bout (for another promoter), that was not a part of this streak.

[8] Zuffa acquisitions have been included in "Zuffa".

Source:

Singer Backup ("Sherdog Denom for Market Shares.dta")

Exhibit 26 - Named Plaintiffs that were Headliners (Top 15) by Year

Named Plaintiffs	Year in Which Named Plaintiff Was Headliner	Event Date In Class Period	Headliner for Zuffa
BRANDON VERA	2006		Yes
BRANDON VERA	2008		Yes
CUNG LE	2012	Yes	Yes
JON FITCH	2006		Yes
JON FITCH	2007		Yes
JON FITCH	2008		Yes
JON FITCH	2009		Yes
JON FITCH	2010		Yes
JON FITCH	2011	Yes	Yes
JON FITCH	2012	Yes	Yes
JAVIER VAZQUEZ	2001		
JAVIER VAZQUEZ	2002		
JAVIER VAZQUEZ	2003		
KYLE KINGSBURY	N/A		
NATE QUARRY	N/A		

Notes:

- [1] Headliner means ranks strictly smaller in magnitude than 16.
- [2] Athletes' best rank across all weight classes in Singer's Headliner Market were used in this analysis.
- [3] Dr. Singer's Headliner definition omits the following weight classes: men's strawweight, women's featherweight, women's flyweight, and women's atomweight classes. See Singer Report at Footnote 268.
- [4] Class Period is December 16, 2010 to Present.
- [5] Zuffa acquisitions have been Included in "Zuffa".

Source:

Singer Backup ("Sherdog Denom for Market Shares.dta")

Exhibit 27 - Number of Zuffa Athletes that were Headliners (Top 15) by Year and in Entire Class Period

Year	All Zuffa Athletes	Zuffa Athletes that were Headliners	% Zuffa Athletes that were Headliners
Entire Class Period	1,214	269	22%
1993	10	3	30%
1994	37	5	14%
1995	38	5	13%
1996	40	5	13%
1997	52	11	21%
1998	38	10	26%
1999	58	24	41%
2000	65	25	38%
2001	48	30	63%
2002	66	34	52%
2003	57	30	53%
2004	54	26	48%
2005	102	32	31%
2006	174	44	25%
2007	285	70	25%
2008	301	75	25%
2009	333	83	25%
2010	343	81	24%
2011	485	117	24%
2012	449	111	25%
2013	452	125	28%
2014	565	131	23%
2015	576	138	24%
2016	554	136	25%
2017	331	62	19%

Notes:

[1] Headliner means ranks strictly smaller in magnitude than 16.

[2] Athletes' best rank across all weight classes in Dr. Singer's Headliner Market were used in this analysis.

[3] Dr. Singer's Headliner definition omits the following weight classes: men's strawweight, women's featherweight, women's flyweight, and women's atomweight classes. See Singer Report at Footnote 268.

[4] Class Period is December 16, 2010 to Present.

[5] Zuffa acquisitions have been Included in "Zuffa".

Source:

Singer Backup ("Sherdog Denom for Market Shares.dta")

Exhibit 28 - Foreclosure Share of Dr. Singer's "Ranked" Relevant Input Market Over Time
No Revenue Weight (January 2005 - June 2017)

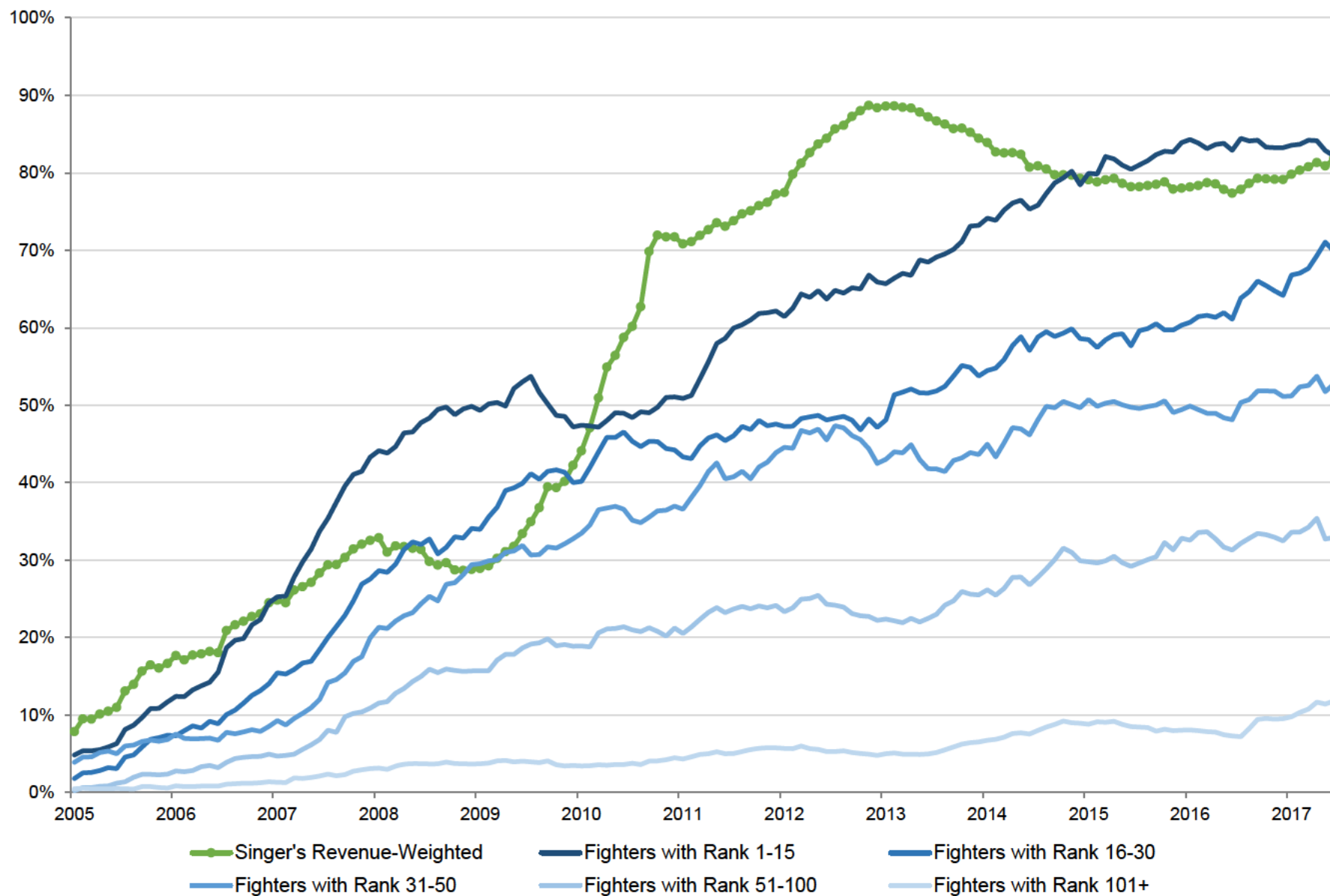


Exhibit 29 - Foreclosure Share of Dr. Singer's "Ranked" Relevant Input Market Over Time
All Corrections (January 2005 - November 2015)

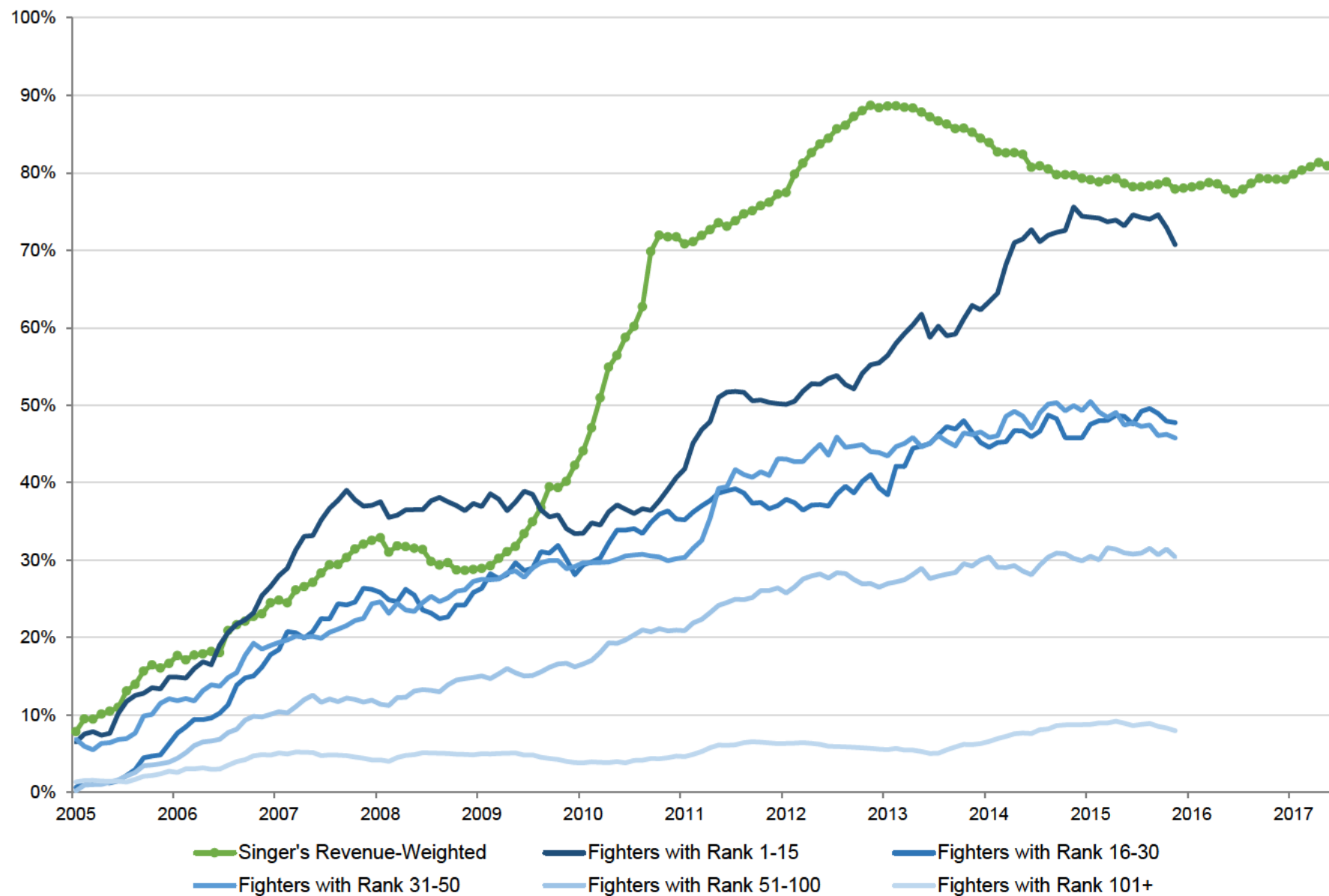


Exhibit 30 - Total Live Attendance at Events in Dr. Singer's "Tracked" Market

Year	Event Count		Average Event Attendance		Total Live Attendance
	Zuffa	Non-Zuffa	Zuffa	Non-Zuffa	
2006	18	22	7,793	14,596	461,393
2007	27	11	12,454	14,596	496,807
2008	26	25	9,491	10,227	502,443
2009	28	27	10,573	11,923	617,980
2010	32	41	11,158	7,093	647,857
2011	38	34	11,314	9,156	741,229
2012	36	26	10,787	9,156	626,388
2013	34	25	12,108	4,216	517,077
2014	46	23	10,107	8,243	654,494
2015	41	16	11,575	8,243	606,463

Notes:

[1] Total live attendance is equal to the number of events multiplied by average event attendance.

[2] Average live attendance at Zuffa and Non-Zuffa events is calculated from MMA Payout using same methodology Dr. Singer uses to calculate foreclosure share revenue weights.

Sources:

Singer Backup ("Figures 4A, 4B, 4C, & 4D - Zuffa and Non-Zuffa Event-Fighter Counts by Year.xlsx", "Weight Data for Foreclosure Shares.xlsx")

Exhibit 31 - Total TV Viewership at any MMA Events in Dr. Singer's Tracked Market by Year

	TV Viewership		Zuffa PPV Viewership	Total Viewership	
	Zuffa	Non-Zuffa		Including PPV	Excluding PPV
2005	9,185,000	0			9,185,000
2006	17,572,000	0			17,572,000
2007	19,051,000	596,000			19,647,000
2008	17,774,000	13,324,500			31,098,500
2009	20,761,000	5,959,081	6,457,737	33,177,818	26,720,081
2010	30,071,000	6,832,673	7,707,123	44,610,797	36,903,673
2011	44,693,303	2,113,212	6,848,000	53,654,515	46,806,515
2012	44,795,798	0	4,826,147	49,621,945	44,795,798
2013	45,418,545	17,977,500	5,843,173	69,239,218	63,396,045
2014	34,924,500	15,502,333	2,844,591	53,271,424	50,426,833
2015	40,713,000	11,936,000	6,412,699	59,061,699	52,649,000
2016	43,712,500	16,229,000			59,941,500

Notes:

[1] "TV Viewers" is the Neilson average audience projection for "persons 2-99" - an estimated average of viewing audience. In the source data, this is identified as "Persons 2 - 99 MC US AA Proj (000)".

[2] Zuffa viewership totals include viewership of promoters acquired by Zuffa.

[3] Non-Zuffa TV viewership includes Bellator, EliteXC, Strikeforce (pre-acquisition), and WEC (pre-acquisition)

[4] Zuffa PPV Viewership includes residential PPV buys (cable, satellite, UFC.TV, Online).

Sources:

WME ZUFFA 00001150; Nielsen TV Ratings Data "20170828 - All MMA Promotions Live Events_v02.xlsx"

Exhibit 32 - Singer's Bout Class Compensation Structure Regressions

Dependent Variable: Log(Own Annual Per-Event Compensation)

	2010-2016		2005-2016	2010-2016
	(1)	(2)	(3)	(4)
Log (Average Others' Per-Event Compensation)	-0.0599 (0.0396)		-0.0647 (0.0400)	-0.0588 (0.0420)
Lag Log (Average Others' Per-Event Compensation)		0.0229 (0.0413)	0.153** (0.0392)	0.00521 (0.0442)
Time Trend	0.157** (0.0117)	0.153** (0.0110)	0.172** (0.00963)	0.157** (0.0117)
Constant	9.182** (0.544)	8.025** (0.601)	6.953** (0.857)	9.090** (0.992)
Athlete Fixed Effects?	Yes	Yes	Yes	Yes
Number of Athlete Fixed Effects	1,262	1,262	1,450	1,262
Observations	3,425	3,425	4,250	3,425
R-squared	.863	.863	.851	.863

Note:

[1] Robust standard errors are in parentheses. ** p<0.01, * p<0.05

Source:

Singer Backup ("15_Core_Regs_Plus_Damages.do")

Exhibit 33 - Damages to Named Plaintiffs

	Damages from Regression Data Bouts	
	Include Strikeforce	Exclude Strikeforce
	(Singer Table 11 Regression)	(Singer Table 10 Regression)
Brandon Vera	\$631,820	\$442,688
Cung Le	\$610,132	\$79,362
Javier Vazquez	\$40,991	\$32,824
Jonathan Fitch	\$2,542,928	\$1,560,360
Kyle Kingsbury	\$1,386,146	\$1,093,787
Nate Quarry	\$0	\$0

Notes:

[1] All damages calculations are based on the regression models Dr. Singer uses to calculate damages in Tables 10 and 11 in his report. Damages that include Strikeforce correspond to Dr. Singer's Table 11 and damages that exclude Strikeforce correspond to Dr. Singer's Table 10.

[2] Damage calculations assume a but-for foreclosure share equal to 30 percent.

[3] Damages from Regression Data Bouts includes damages associated with UFC bouts included in Dr. Singer's regression data that occurred after December 16, 2010.

Source:

Singer Backup ("Regression Data.dta")

Exhibit 34 - Bout Class Members With Negative Damages

	Damages from Regression Data Bouts	
	Include Strikeforce (Singer Table 11 Regression)	Exclude Strikeforce (Singer Table 10 Regression)
Brock Lensar	-\$7,071,472	-\$6,860,480
Anderson Silva	-\$6,606,370	-\$9,406,525
Conor McGregor	-\$5,345,250	-\$6,622,449
Georges St-Pierre	-\$3,347,522	-\$4,663,595
Quinton Jackson	-\$2,195,568	-\$2,213,412
Dan Henderson	-\$2,018,721	-\$2,664,494
Jon Jones	-\$1,749,894	-\$2,863,318
Tito Ortiz	-\$1,474,079	-\$3,209,403
Mirko Filipovic	-\$929,147	-\$716,191
Wanderlei Silva	-\$520,087	-\$612,725
Matt Hughes	-\$365,967	-\$888,038
CM Punk 'Phil Brooks'	-\$331,612	-\$344,342
Junior Dos Santos	-\$181,468	-\$202,353
Antonio Rodrigo Nogueira	-\$33,157	\$401,795

Notes:

[1] All damages calculations are based on the regression models Dr. Singer uses to calculate damages in Tables 10 and 11 in his report. Damages that include Strikeforce correspond to Dr. Singer's Table 11 and damages that exclude Strikeforce correspond to Dr. Singer's Table 10.

[2] Damage calculations assume a but-for foreclosure share equal to 30 percent.

[3] Damages from Regression Data Bouts includes damages associated with UFC bouts included in Dr. Singer's regression data that occurred after December 16, 2010.

[4] Exhibit lists all athletes suffering negative damages using Dr. Singer's Table 11 regression model.

Source:

Singer Backup ("Regression Data.dta")